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ABSTRACT

Articles on diverse areas of linguistics include the following: "Correlative Constructions in Chinese" (Steve Harlow, Connie Cullen); "Xhosa Isinkalakahliso Again" (John Kelly); "Conversational Phonetics: Some Aspects of News Receipts in Everyday Talk" (John Local); "Parametric Interpretation in Yorktalk" (Richard Ogden); "English in Contact with Other Languages: English Loans in German after 1945" (Charles V. J. Russ); "From Reanalysis to Convergence: Swahili-Amba" (Joan Russell); "Post-Vocalic /r/ in Singapore English" (Tan Chor Hiang, Anthea Fraser Gupta); "A Lexical Default Account of English Auxiliaries" (Anthony R. Warner); and "Discourse Anaphora in Chinese: A Rhetorical Predicate Account" (Guobin Wu). (MSE)

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CORRELATIVE CONSTRUCTIONS IN CHINESE*

Steve Harlow and Connie Cullen

University of York

Chinese possesses a construction-type known as 'correlative constructions'. Such constructions are characterised by the presence of a pair[1] of morphemes marking the constituent halves of the construction. Examples (taken from Liu 1981) are as follows in which the markers of the correlative construction are italicised:

(1) Zhuxi *yi* chulai, qunzhong *jiu* gu-zhang
chairman as-soon-as come-out, masses then applaud
As soon as the chairman appeared the masses applauded

(2) *Suiran* An Xian nianji xiao,
although An xian age small,
ta *que* shemme dou hui
he however anything all can
Although An Xian is young, he can do everything

(3) *Yinwei* Da Niu sheng bingle,
because big ox grow sick,
suoyi ta mei-lai shang ke
therefore he did-not-come attend class
Because Da Niu is ill he didn't come to class

---

* An earlier version of this paper was read to the Autumn meeting of the Linguistics Association of Great Britain in 1986. The authors would like to thank participants at that meeting for their comments, in particular Elisabet Engdahl and Dick Hudson, neither of whom are responsible for our failure to take their advice.

1 Or in some cases an n-tuple. We restrict our attention in this paper to pairs, although the analysis that we propose should extend unproblematically to n-tuples.

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In this paper we propose that the properties of these constructions are most satisfactorily accounted for if they are treated as being multi-headed; that is, both halves of the construction are heads. The theoretical framework that we assume for concreteness is that of Generalised Phrase Structure Grammar (GPSG) as presented in Gazdar et. al. (1985), although we believe that the essentials of our analysis will transfer to any framework which exploits a feature decomposition of categories and a schema for constituent coordination. In effect, we are proposing a theoretical reconstruction and justification of Chao's (1968) contention that these are coordinate constructions.[2]

A fruitful starting point for discussion of the properties of these constructions is a paper by Liu Feng-hsi (Liu 1981). Liu presents a more extensive range of examples than those provided so far. More specifically, the examples in (1-3) only represent a subset of the possible patterns involving the correlative markers *yi...jiu* (as soon as...then), *suiran...que* (although...yet), and *yinwei...suoyi* (because...therefore). (4)-(7) show that correlative markers fall into four groups with respect to their permitted linear order relative to the subject:

(4) a. Zhuxi *yi* chulai, qunzhong *jiu* gu-zhang
chairman as-soon-as come-out, masses then applaud
As soon as the chairman appeared the masses applauded
b. **Yi* zhuxi chulai, *jiu* qunzhong gu-zhang

---

2 Chao (1968:793) lists the following set of correlative markers (transcription altered from GR to Pinyin [CJC/SJH]): *yue...yue* (the more...the more), *ye...ye/you...you* (both...and), *bu...bu* (not...unless), *yitou...yitou/yibian... yibian* (X...while Y), *huoshi...huoshi /haishi...haishi* (either...or), *suiran...danshi* (although...yet), *yinwei...suoyi* (because...therefore), *jiran...jiu* (inasmuch as...then), *yaoshi/yao/jiaru...jiu* (if...then), *chufei/chule...bu* (unless...not), *chufei/chule...cai* (only if...then), *bushi...jiushi* (if not...then), *zhiyao...jiu* (so long as...then), *shangqie...hequang* (not even...how much more), *budan...bingqie / erqie* (not only...but also), *ninke...yebu* (would rather...than), *yuqi/youde...ningke/buru/haishi* (rather than...had better), *jinguan...haishi* (not matter if...still), *zai/duo...ye* (no matter how...still), *jiushi/jishi...ye* (even if...then), *gang(cai)...jiu* (just as...then), *yi...jiu* (as soon as...then). Many of these pairs will be discussed below.

c. **Yi* zhuxi chulai, qunzhong *jiu* gu-zhang
d. **Zhuxi yi* chulai, *jiu* qunzhong gu-zhang

(5) a. *Suiran* An Xian nianji xiao,
although An Xian age small,
ta *que* shemme dou hui
he however anything all can

Although An Xian is young, he can do everything
b. An Xian *suiran* nianji xiao, ta *que* shenme dou hui
c. **Suiran* An Xian nianji xiao, ta *que* shenme dou hui
d. **An Xian *suiran* nianji xiao, ta *que* shenme dou hui

(6) a. *Yinwei* Da Niu sheng bingle, *suoyi* mama
because big ox grow sick, therefore mother
hen danxin
very worried
Because Da Niu is ill, therefore (his) mother is very worried
b. Da Niu *yinwei* sheng bingle, *suoyi* mama hen danxin)
c. **Yinwei* Da Niu sheng bingle, mama *suoyi* hen danxin
d. **Da Niu *yinwei* sheng bingle, mama *suoyi* hen danxin

(7) a. *Bushi* ni lai, *jiushi* wo qu
not-is you come then-is I go
Either you come, or I go
b. **Ni *bushi* lai, *jiushi* wo qu
c. Ni *bushi* lai, wo *jiushi* qu
d. **Ni *bushi* lai, wo *jiushi* qu

The four classes of correlative markers have the following properties:

A. in both halves, the subject must precede the correlative marker (4): *yi...jiu*.
B. the correlative marker can either precede (5a) or follow (5b) the subject. In the second half of the construction the correlative marker always follows the subject: *suiran...que*.
C. this pattern is like (B) in allowing both order of subject and correlative marker in the first half of the construction, but differs in

the second half where the correlative marker must *precede* its subject (6): *yinwei ...suoyi*.

D. the last class allows two possible orders in *both* halves, subject to a parallelism restriction: the order of correlative marker in the second half of the construction must be the same as that in the first half (7): *bushi ...jiushi*.

The table in (8) summarises these ordering properties.

(8)

TYPE A	SUBJ	CM	SUBJ	CM
= (4a)	Zhuxi	yi	qunzhong	jiu
TYPE B	SUBJ	CM	SUBJ	CM
i. = (5a)	An Xian	suiran	ta	que
	CM	SUBJ	SUBJ	CM
ii. = (5b)	Suiran	An Xian	ta	que
TYPE C	CM	SUBJ	CM	SUBJ
i. = (6a)	Yinwei	Da Niu	suoyi	mama
	SUBJ	CM	CM	SUBJ
ii. = (6b)	Da Niu	yinwei	suoyi	mama
TYPE D	CM	SUBJ	CM	SUBJ
i. = (7a)	Bushi	ni	jiushi	wo
	SUBJ	CM	CM	SUBJ
ii. = (7c)	Ni	bushi	wo	jiushi

Ordering of subject and correlative markers is one property of correlative constructions for which an account is required. A second property, which is the major focus of Liu's paper, is the occurrence in these constructions of phonologically empty pronouns.As is well-know, anaphoric pronouns can be either phonologically realised or phonologically empty in Chinese with a very considerable degree of freedom (cf. Chen 1984,Huang 1984, Li and Thompson 1979 and Xu 1986). The passage given as (9) below exemplifies some of the

possibilities. It is taken from Chen (1984) and zeros are used to mark positions that have been analysed as being filled by empty NPs.

(9) Lao Qian you zhemme ge piqi
Lao Qian had this-kind-of a temperament
Ø wen Ø pengyou yao shenme dongxi
(he) ask (his) friend want what thing
Ø like jiu dei gei Ø Ø
(he) immediately then must give (him) (it)
Ø bu gei Ø Ø
(he) not give (him) (it)
Ø jiu jucde Ø shi qiaobuqi ta
(he) then felt (he) is despise him
Ø jitian bu gaoxing
(he) several-days not happy

Old Qian had this kind of personality: if he asked his friend for something, the friend must give him it immediately; if he didn't, then Old Qian would feel that the friend must despise him and would be displeased for several days.

Liu gives the following examples to illustrate the distribution of pronouns in correlative constructions.[3] (10) is an example of Type A, where the subjects must precede the correlative markers. Here a zero pronoun is obligatory.

(10) Xiao Ming yi jiandao wo, (*ta) jiu xiang wo
Xiao Ming as-soon-as see me, she then to me
zhao shou
wave hand
As soon as Xiao Ming saw me, she waved at me

---

3 As usual, (X) denotes that X is optional; (*X) that X is not possible and *(X) that X is obligatory. The judgements given here are Liu's. Not all Chinese speakers share them. We will not discuss alternative judgements here, but will restrict our attention in this paper to the pattern of judgements given in the text.

(11) is an example of Type B, in which alternative orders are possible in the first half of the construction, and the subject precedes the correlative marker in the second half. Here zero pronominals are optional when the subject of the first clause *precedes* its correlative marker, but obligatory otherwise.

(11) a. *Suiran* An Xian nianji xiao,
although An xian age small,
(ta) *que* shemme dou hui
he however anything all can
Although An Xian is young, he can do everything

b. An Xian *suiran* nianji xiao,
An xian although age small,
(*ta) *que* shemme dou hui
he however anything all can

(12) is an example of Type C, in which again both orders are possible in the first half, but in the second half, the subject *follows* the correlative marker. Here we find that possible zero pronominal occurrences are similar to those in (11), except that, when the first half is subject-initial, a zero pronoun is dispreferred rather than impossible.

(12) a. *Yinwei* Da Niu sheng bingle,
because big ox grow sick,
suoyi (ta) mei-lai shang ke
therefore he did-not-come attend class
Because Da Niu was ill, he didn't come to class

b. Da Niu *yinwei* sheng bingle, *suoyi* ?(ta) mei-lai
big ox because grow sick, therefore he did-not-come
shang ke
attend class

Finally, in (13) we have examples of Type D, where there must be parallel orders in each half. Here an overt pronoun is preferred when it *follows* the correlative marker, but is impossible when it *precedes*.

(13) a. *Bushi* Li Si jicuole, *jiushi* ?(ta) wangle
not-is Li Si misremember, then-is he forget
Either Li Si misremembered, or else he forgot

b. *Li Si *bushi* jicuole, (*ta) *jiushi* wangle
Li Si not-is misremember, he then-is forget

In (14) is a table which is taken from Liu (1981) which summarises this correlation between ordering properties and zero anaphora.

(14).

TYPE A	SUBJ	CM	SUBJ	CM	ZERO-ANAPHORA
= (10)	Xiao Ming	yi	(*ta)	jiu	Obligatory
TYPE B	SUBJ	CM	SUBJ	CM	
i. = (11a)	An Xian	suiran	(*ta)	que	Obligatory
	CM	SUBJ	SUBJ	CM	
ii. = (11b)	Suiran	An Xian	(ta)	que	Optional
TYPE C	CM	SUBJ	CM	SUBJ	
i.= (12a)	Yinwei	Da Niu	suoyi	(ta)	Pronoun preferred
	SUBJ	CM	CM	SUBJ	
ii. = (12b)	Da Niu	yinwei	suoyi	(ta)	Optional
TYPE D	CM	SUBJ	CM	SUBJ	
i. = (13a)	Bushi	Li Si	jiushi	(ta)	Pronoun preferred
	SUBJ	CM	SUBJ	CM	
ii. = (13b)	Li Si	bushi	(*ta)	jiushi	Obligatory

The first two columns give the relative order of the subject and the correlative marker (CM) for the first clause, and the second pair give the relative order for the second clause. The comments in the final column under the heading 'zero anaphora' give the status of phonologically empty pronouns in the subject position of the second clause.

Liu (1981:200) provides the following a descriptive generalisation about this patterning:

(15) Zero anaphora is obligatory in parallel structures if the subject precedes the [correlative] marker; otherwise it is optional. (In parallel structures with the subject following the [correlative] marker the pronoun is preferred.)

To render the data supporting this generalisation more transparent, we present in (16) a reorganisation of Liu's table (14) in which we make the primary sorting key the status of the pronoun, and the secondary key the order of correlative marker and subject. In Liu's table, the primary key is the individual correlative markers; a consequence of the reclassification in (16) is that some correlative markers appear under more than one heading. This will be significant.

(16)							
a	SUBJ	CM	SUBJ	CM		PRONOUN
		yi		jiu	A	
		suiran		que	B.i	Obligatory zero
		bushi		jiushi	D.ii	
b.i	CM	SUBJ	SUBJ	CM		
	suiran			que	B.ii	Optional
b.ii	SUBJ	CM	CM	SUBJ		
		yinwei	suoyi		C.ii	Optional
c	CM	SUBJ	CM	SUBJ		
	yinwei		suoyi		C.i	Overt preferred
	bushi		jiushi		D.i	

We now have a generalisation about the distribution, but we do not as yet have an explanation. It is to this that we now turn.

The essence of our proposal is the claim that correlative constructions are in fact coordinate constructions, as Chao (1968) suggested. To make this claim specific, we provide in (17) a rule schema to define for these constructions.

(17) V^2 --> H[CONJ α_0], H[CONJ α_1][4]
where $\alpha \in$ {<yinwei, suoyi>, <bushi, jiushi>,<suiran, que>, <yi, jiu>, <ye, ye>}

(17) is Gazdar et. al.'s Binary Coordination Schema (1985: 171), with a category value assigned to the mother and the lexical values of the Chinese correlative markers given as values of the CONJ feature.[5] The essence of the GPSG analysis of coordinate structures is that all conjuncts are heads. This ensures (via the Head Feature Convention) that conjuncts share relevant properties, such as categorial identity. Hence, in any instantiation of (17), the two daughters will both be V^2.[6]

---

4 V^2 subsumes both S and VP.

5 The rule says nothing about the relative order of the daughters. This will be determined by a Linear Precedence (LP) statement. See Gazdar et. al. (1985: 172) for details.

6 A possible objection to our proposal that correlative constructions are in fact coordinate constructions might be that they do not possess a uniform semantics. To this we respond that the crucial property defining these constructions is multi-headedness and we use the term 'coordinate structure' to refer to this. It does not necessarily follow that such constructions share a common pattern of semantic interpretation. We would assume, although we will not attempt to justify it here, that the semantics of these constructions is compositional and that the coordinating morphemes themselves make a compositional contribution to the semantics of the construction as a whole.

A second objection, due to Dick Hudson (personal communication) is that at least some of these correlative markers are, in fact, adverbs and not conjunctions (in particular *ye* 'also'). While it is true that the label 'adverb' is applied in this way, it is also a fact that adverbs as a class are notoriously difficult to define and the these items do not share the distribution of Chinese manner adverbials, nor the distribution of, say, temporal adverbs. Lest translation equivalents muddy the decision on this point, note that whereas English *also* does have a characteristics adverb distribution ('Also,

Thus far, modulo the different lexical items involved, we are claiming that coordination in Chinese and English is essentially the same. We propose, however, that Chinese differs from English in two crucial respects. The first is that in Chinese the feature CONJ is a member of the set of head features, as specified in (18).

(18) CONJ ∈ HEAD

This means that it will be subject to the Head Feature Convention with the result that we will get the effect of percolation of that feature and its value down through heads from the position at which it is introduced by the rules of the grammar.

Secondly, the Chinese rules which spell out the conjunction itself, (19) and (20), making it a sister of a category identical to the mother, are, in contrast to their English counterpart, category specific.[7]

(19) S[CONJ α] --> {[SUBCAT α]}, H[CONJ NIL]
where α ∈ {yinwei, suoyi, bushi, jiushi, suiran}

(20) VP[CONJ α] --> {[SUBCAT α]}, H[CONJ NIL]
where α ∈ {yinwei, bushi, jiushi, ye, suiran, que, yi, jiu}

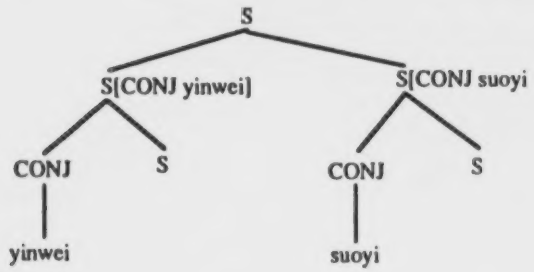
Crucially there are different rules in (19) and (20) for sentences and for VPs. They differ specifically in respect of the particular coordinating conjunction that can be instantiated as a sister of the head. So, these rules specify that *suoyi* can only appear as a sister of S, and that *ye*, *que*, *yi* and *jiu* can only appear as sisters of VP. The remainder (*yinwei*, *bushi*, *jiushi*, *suiran*) can occur as sister of either VP or S. These rules, therefore, will licence the following trees: sentential coordination in (21), and VP coordination in (22)

---

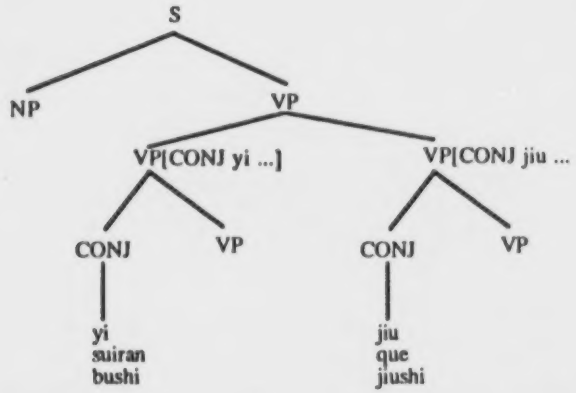
he speaks French'; 'He also speaks French'; 'He speaks French also'), this is not true of *ye* which can only appear in the pre-VP position specified by (20).

7 In fact, these restrictions would be enforced on instantiated features by Feature Coocurrence Restrictions. For simplicity of presentation we have chosen fto by-pass these details here.

(21)

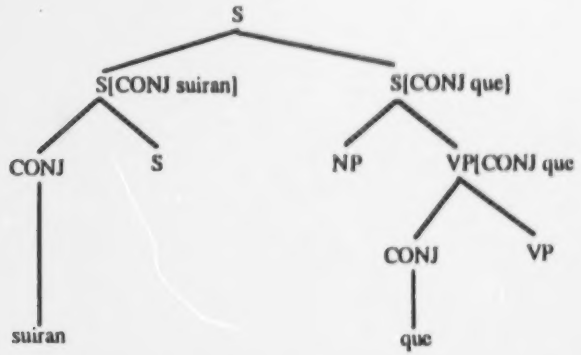


(22)



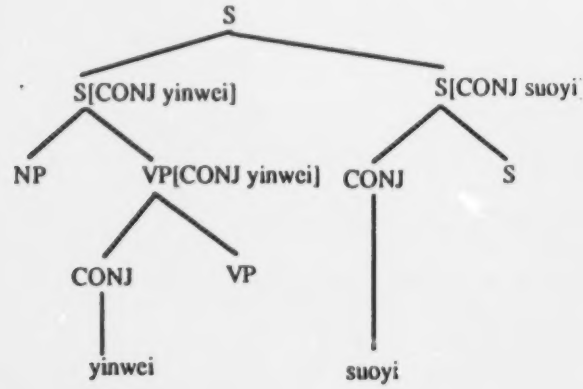
Note, however, that although these rules preclude the appearance of certain conjunctions as sisters to S or VP, they do not restrict the instantiation of the CONJ feature on an S or VP node. Indeed, the Head Feature Convention will ensure that mother and head daughters must share permitted feature instantiations. Therefore, in addition to (21) and (22), the rules admit the following trees, in which the coordinated category is S, but one or more of the coordinating conjunctions appears as a sister of VP.

(23)



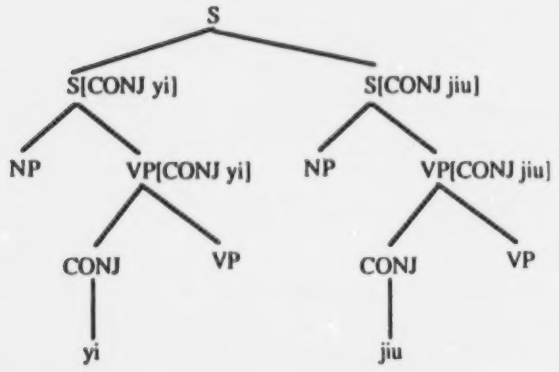
Here the CONJ feature in both conjuncts is introduced at the S level by rule (17). They differ, however, in the level at which the conjunct themselves can be realised *Suiran* (although) is realised at the S level, but *que* (yet) is only realised at the VP level. The CONJ feature 'percolates' down the tree as a consequence of the Head Feature Convention.

(24)



Yinwei (because), but not *suoyi*(therefore), can also be realised at the VP level. Here too, the CONJ feature percolates down the tree as a consequence of the Head Feature Convention.

(25)



Yi (as soon as) and *jiu*(then) are both realised at the VP level, although they express a sentence-level coordination. Again, the CONJ feature percolates down the tree as a consequence of the Head Feature Convention.

Note also that the requirement that conjuncts in Chinese precede their heads and that subjects preceded their VP sisters accounts straightforwardly for the ordering facts discussed above.

Now, it might be objected that having two separate rules like (19) and (20) which are category-specific spellings out of coordinating conjunctions, is unmotivated and *ad hoc*. Our response to this objection is to point out that this kind of thing is in any case necessary for Chinese, because coordinating conjunctions are indeed category specific, as (26) illustrates.

(26) a. Wo gen/he ni dou qu
I and you all go
I and you are both going

b. Wo ye qu, ni ye qu
I also go you also go
I and you are both going

c. *Ye wo ye ni qu
also I also you go
(I and you are both going)

In Chinese we have a situation in which NPs, for instance, take a different set of coordinating conjunctions to the verbal projections which we have been discussing above.

The coordination rule for NPs will look like (27),

(27) NP --> H[CONJ α_0] H[CONJ α^1]
where $\alpha \in$ {<NIL gen> <NIL he>}

which defines NP coordinating conjunctions to be the morphemes *gen* and *he*. We therefore need category-specific conjunctions for Chinese anyway. Our proposed analysis of correlative constructions merely extends this to S and VP, with some degree of overlap between the two.[8]

The analysis thus far has only been concerned with the distribution of correlative markers. We have not yet touched on the issue of zero anaphora. Recall that, according to Liu's generalisation, we get several instances of obligatory zero anaphora when in *both* conjuncts the coordinating conjunctions occur after the subject. According to our analysis, the correlative markers occur in this position because they have been realised at the VP level. They are therefore by the rules that we have given for VP coordination. So the simple answer the reason why there are no *overt* pronouns in the second conjunct in these cases is because there is no noun phrase in the second conjunct at all. These constructions are simply instances of the structure in (22) – coordinated VPs. So the reason also why we *do* get overt pronouns in the other

---

8 Note also that English coordinating conjunctions exhibit some degree of category-specificity. *Both...and* is decidedly awkward with bare S's

i. ?Both John is rich and Mary is rich.

while being fine with S':

ii. Max stated both that John is rich and that Mary is rich

Either...or on the other hand is good with both

iii. Either John is rich or Mary is rich

iv. Max stated either that John is rich or that Mary is rich

kinds of structures is because they all involve cases of *sentential* coordination.[9]

There is some interesting support for this position from a rather different kind of evidence. Chen (1984), a study of the distribution of Chinese zero anaphors in discourse, provides the following statistics for the occurrence of zero anaphora in the corpus:

(28) Relative occurrence of zero anaphora (Chen 1984:15)

Syntactic position	Number	Percentage
topic/subject	43	75.4
direct object	11	19.3
indirect object	3	5.3

A glance at these results reveals a striking asymmetry between the number of occurrences of topic/subject zero anaphors and the number of occurrences of their direct object and indirect object counterparts, with the former being by far and away the most frequently occurring kinds of empty categories. Why should there be this asymmetry? Our analysis

---

9 It is valid to ask how one can be sure that one is dealing with VP coordination, rather than sentential coordination, where the subject of the second conjunct is a zero-pronoun. This is a difficult question to answer conclusively. What can be demonstrated is that there is indeed evidence that Chinese actually allows VP coordination. On the assumption that zero-pronouns in Chinese are simply the covert versions of their overt counterparts and, in particular, that they serve the same anaphoric functions, the fact that there are coordinate structures such as (i) below which do not permit an overt pronoun in the second conjunct, should serve to argue that we have here a situation in which a pronouns are not permitted. The only remaining option is VP coordination.

i. Meige ren ye dou hui shuo Hanyu,
every man both all can speak Chinese
(*ta) ye dou hui shuo Yingyu
(*he) and all can speak English
Everyone can speak both Chinese and English

provides the basis for an explanation. Since Chen does not consider the possibility of VP coordination, all such potential instances VP coordination are treated as examples of zero subject anaphora. A plausible account of the much greater frequency of occurrence of zero subject anaphors is that more than one construction is involved. A combination of VP coordination with genuine zero discourse anaphora provides a double source for the number of apparent empty topic/subject positions. For object positions, by contrast, there is no coordination possibility which has the appearance of a zero pronoun; in these cases we are only going to get missing objects where there are, indeed, missing objects. So we suggest that the statistics which Chen has produced are the result of a kind of conspiracy between real empty NPs and the facts of VP coordination.

What we have tried to do in this paper is to outline an analysis of Chinese correlative constructions which not only gives a principled account of the distribution of correlative markers, but which also offers the prospect of an explanation for some puzzling facts about the the distribution of anaphoric pronouns. Our suggestion is that Liu and Chen have misidentified instances of VP coordination as zero-anaphora in such constructions. This leads us to raise a more general question about zero-anaphora. It seem clear to us that better criteria are required for the identification of zero-anaphors in languages like Chinese, which lack corroborative evidence (such as agreement morphology). There is a danger that the implicit criteria are simply that if what could be an NP position is empty, it must in fact be occupied by a zero-anaphor. Sometimes (but not with respect to the data we have discussed in this paper), it even seems that the occurrence of an overt pronoun in an English translation is sufficient evidence to warrant the postulation of a zero-anaphor in Chinese. We have shown in this paper that, for at least a subset of Chinese, a better account is available without zero-anaphors.[10]

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10 We should point out that our analysis is certainly not the last word on the subject. While it is correct to say that when VP coordination is the only possibility overt subject pronouns are excluded and where sentential coordination is possible then overt subject pronouns are possible, there is a third situation for which our analysis does not provide a complete account. For correlative markers of the *yi...jiu* (as soon as...then) type, we propose

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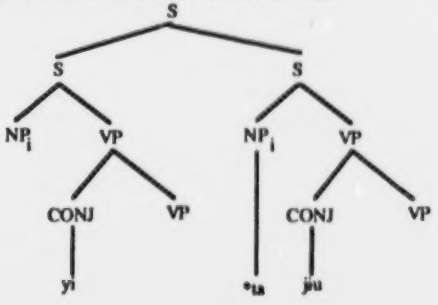
that there is sentential coordination, but that the correlative markers are spelled out at the VP level. This is because they occur in post-subject position. The other aspects of our analysis would lead us to expect that, because the second conjunct contains a subject position, an overt pronoun should be possible there. This is not in fact the case:



Clearly, additional factors are at work here which serve to limit the permissible structure to VP coordination.

XHOSA ISINKALAKAHLISO AGAIN*

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The phonological phenomenon of *isinkalakahliso* characterises a number of grammatical categories in a group of Southern Bantu languages. The group falls into two sub-groups, one being Sotho and Tswana, the other those languages to the south and east of them known collectively as the Nguni languages - Zulu, Xhosa and Swazi. As far as first-hand language material is concerned this paper is concerned with Xhosa, though attention will be paid to the literature on other languages.

The grammatical categories in question vary a little from language to language, but there are three core categories which are always involved. These are the three that are involved in Xhosa, and they are:

(a) the passive
(b) the locative
(c) the diminutive

All three categories are carried morphologically, and their morphology is relatively simple, as in each case simplex affixes operate. It is the phonology that is complex; and this is largely because *isinkalakahliso* applies. The phenomenon will be dealt with here mainly as it arises in the passive.

In a large number of Bantu languages the verb shows a number of 'extended' forms, in which one of a set of morphological elements, often called 'extensions', stands between the base of the verb and various modal, personal and other endings. Bases are typically of the form $(CV)_nC$- and extensions of the form -VC-. Illustrative examples of them in Xhosa follow, in the standard orthography, in which digraphs

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such as *gx, sh, hl, ts, ph, ny, ty, nq, mb , dl* and others serve to reflect unit consonants:

luma	'bite'	*lumeka*	(Stative)
bhona	'see'	*bhonisa*	(Causative)
hlala	'stay'	*hlalela*	(Directive)

In these examples the Stative, Causative and Directive extensions can be seen to be *-ek* -, *-is* -and *-el* -. The final *-a* is a modal marker.

Another extension is the passive, either -C- or -VC-. The -C- is *-w-*, so some passive forms look as follows - for bases that do not end in labials:

betha	'hit'	*bethwa* '	be called'
buza	'ask'	*buzwa*	'be asked'
qeqesha	'train'	*qeqeshwa*	'be trained
gxeka	'mock'	*gxekwa*	'be mocked'
zala	'bear'	*zalwa*	'be born'
phinda	'increase'	*phindwa*	'be increased

In bases that do end in labials passive forms have *isinkalakahliso* consonants at that point together with *-w-*:

bhopha	'bind'	*bhotʃwa*	'be bound'
hlaba	'stab'	*hlatywa*	'be stabbed'
luma	'bite'	*luɲywa*	'be bitten'
hamba	'travel'	*hanjwa*	'be travelled'

where *tsh* can be seen to stand in the place previously occupied by *ph, ty* in that of *b* and so on.

The phonetic working of *isinkalakahliso* is described for Xhosa by McLaren (1955: 101) as follows :

> 'Labial sounds coming before the passive inflection are changed...just as they are before the locative and diminutive suffixes of nouns. This change may extend to any labial except one in the first syllable of the verbal base'.

The second part of this characterisation is meant to include cases such as

dubula	'shoot'	*dutyulwa*	'be shot'
bubisa	'destroy'	*bujiswa*	'be destroyed'
tyumza	'crush'	*tyunyuzwa*	'be crushed'
nqumla	'cut off'	*nqunyulwa*	'be crushed'

Many of the verbs that would fall under the first column are already extended. The second one here, for example, is itself a causative (of *buba*) Others may be morphologically complex. In the last two the *-m-* is syllabic and is the phonetic manifestation of an underlying *-mu-*; we may have to do here and in the first example with fossilised infixes *-ul-* and *-uz-*. The second part of MacLaren's characterisation ('...except one in the first syllable...') goes on to debar from *isinkalakahliso* that small number of Xhosa verbs which have bases of the shape (V)C- and which take the -VC- version of the infix, *-iw-*. Examples are

pha	'give'	*phiwa*	'be given'
dla	'eat'	*dliwa*	'be eaten'
osa	'roast'	*osiwa*	'be roasted'

McLaren's statement on the passive goes on to give the full list of the *isinkalakahliso* correspondences involved:

> 'Thus p becomes tʃ, ɓ becomes ty, b becomes j, mb becomes nj, m becomes ny'

And of the locative he writes

> 'The labial sounds p, ɓ, b, m, mp, mb, when they occur in the last syllable of a noun are usually changed before the locative termination..., especially when the final vowel of the noun is **o** or **u**. In these cases p becomes tʃ; ɓ, ty; b, j; m, ny; mp, ntʃ; and mb, nj'.

His examples of locatives with these labial base-final stops + *o*, *u* in Xhosa are (in an earlier, slightly different orthography)

uβuhlwempu	'poverty'	*eβuhlwentʃini*
incopho	'pinnacle'	*encotʃeni*
ihloβo	'summer'	*ehlotyeni*
imbubo	'destruction'	*embujweni*
umlomo	'mouth'	*emlonyeni*
umlambo	'river'	*emlanjeni*

and, with other final consonants

uβuso	'face'	*eβusweni*
indlu	'house'	*endlwini*
icala	'side'	*ecaleni*
ihaʃe	'horse'	*ehaʃeni*
ilifu	'cloud'	*efini*
umkhosi	'army'	*emkhosini*

The lists also contain examples such as

intaβa	'mountain'	*entaβeni*
intsimbi	'metal'	*entsimbini*
inkomo	'ox'	*enkomeni*

where the consonant of the base form is retained.

The section on Xhosa diminutives shows an addition to the range of consonants involved. McLaren writes

> 'Before the suffix **-ana** labial consonants are usually changed...especially in words ending in **o** or **u**; and **l** is sometimes changed into **dl**'.

Amongst his examples he gives

iguβu	'drum'	igutyana
iintsapho	'children'	iintsatʃhana

umlambo	'river'	umlanjana
inkomo	'ox'	inkonyana
indlela	'road'	indledlana

Doke (1926: 139) presents the sound-correspondences in Zulu as slightly different, though the grammatical categories involved are the same. He refers to the phenomenon as a 'morphological change' and says that it

> '...takes place in the formation of (a) the Passives of Verbs, (b) Locative Adverbs from Nouns and (c) the Diminutive of Nouns, Adjectives, Relatives, and Adverbs. The main rule, which will be deduced from an examination of each of these cases, is as follows:-
>
> ph > ʃ b > dʒ[1]
> ɓ > tʃʔ m > ɲ'

Doke goes on from this generalisation to a detailed treatment of the separate categories, in which, treating of the passive, he expands this list to include mpʔ > ɲtʃʔ and m̲mb > ɲdʒ, a list which recurs with diminutives and locatives.

For Swati Ziervogel (1952: 15) has

> 'The occurrence of this phenomenon is limited to diminutives of nouns, locative of nouns and passives of verbs...'

But here, whilst the grammatical categories concerned are the same as for Zulu and Xhosa, the details of the sound-correspondences are not. In Swati there appears to be slightly more phonetic complexity. Ziervogel's lists show that for all three grammatical categories ph > ʃ, b > dʒ, ɓ > tʃ', mp > nʃ, m > ɲ and mb > ndʒ. But whereas tsh > ʃ and dz > dʒ in diminutives, they are matched by tfh and dv respectively in passives. As in Xhosa l at the end of noun bases is

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1 Doke's dɧ here is a misprint.

matched by ɮ in corresponding diminutives, but not apparently elsewhere.

More recently Louw (1975/76) has produced a wide survey, based on first-hand work with native speakers, of the 'facts' of the phenomenon as it appears in a number of Bantu languages of Southern Africa. Louw's survey, taken together with the grammars quoted above and with pioneering essays by Meinhof (eg (1910) on Venda of the northern Transvaal) and by Tucker (1929 on Suto-Chuana), present a compendium of facts about the workings of this phenomenon in the phonological domain which is extensive not only in the geographical but also in the historical dimension, as Bleek's classic *Grammar* (1862) also presents an early exposition of it.

Moving away from the Nguni sub-group of languages, other languages showing parallel displays of sound-correspondences under these conditions are (varieties of) Tswana and Sotho. In Tswana there are, in addition to the sound-correspondences noted for the Nguni sub-group above, also such cases as *-alafa* 'cure' with passive *-alafwa* : and in the diminutive there is a range of effects on consonants other than bilabial, as there are in Swazi. Tswana has, for instance, *lorole* 'dust' with its diminutive *lorojana*, *piri* 'hyena' with *pitshana* and many others.

But beyond these languages the phenomenon is no longer found at all. Doke (1931: 19), for instance, writing of Central Shona, refers to

> '...a process occurring particularly in the south-western [ie south-west of Shona - JK] Bantu languages...generally due to the action of the semi-vowel *w* upon certain phones with which it is incompatible in combination...as a morphological grammatical process, [it] does not occur in Shona.'

It is worth noting here that Doke restricts his characterisation to cases with the labial-velar semivowel.

As Doke has hinted, the interpretation of of the *isinkalakahliso* forms in Xhosa is often taken alongside other observations of the phonological structures of the language, which do not have, though, the same, or any, grammatical implications. It has been more than once pointed out for Xhosa syllable-initial consonant patterns in general that

the labial-velar glide can follow velar and dental consonants, but cannot appear after labials. It is this rule that is taken to debar *-pw- and *-phw-, *-bw- and *-ɓw-, and *-mw- from passive forms, whilst allowing -pɪw- etc, which is then taken as the starting point for the developments outlined above, whereby palatals arise in the place of the original labials. This is a reasonable enough observation, though it overlooks the fact that a situation is common in languages whereby phonological juxtapositions that are debarred in the phonotactics of lexical items frequently occur at morphological boundaries.

Some of the earliest suggestions for the analysis of this phonological phenomenon come from Bleek (1862: 51), who devotes several pages to a discussion of it and makes a number of prescient suggestions for analysis. One of these is that already mentioned above

> '...these changes may be explained by assuming that the passive inflection itself contained originally the vowel *i* besides its characteristic labial sound...'

A number of Bantu languages in Southern Africa do in fact have -ɪw- as their unique passive infix; and *-ɪɣw- is the reconstruction proposed by Meinhof (1948: 106) for Urbantu. Tsonga, of southern Mozambique, is a language with only an -ɪw- passive (Louw 1975/6: 241). But in other languages the situation is more complex. In Venda, as described by Meinhof, -ɪw- is only one of a series of alternants for the passive. He gives the following examples (1901: 28)

tamba	tambja	tambɣa		'wash'
kapa	kapja	kapχa	kapɪwa	'clear out mud'
beba	bebja	bebɣa		'bear (child)'

where passives of verbs with bases ending in labials can be seen to have two or even three alternants. Louw's more recent material on Venda shows the present situation to be more complex still. He gives -ɪw-, which he calls 'the basic form of the passive extension' and, after labials, a range of others. So, for one of Meinhof's verbs, *-beba* , he gives four basic possibilities, Meinhof's two and two others

-bga -bgwa -bɣa -bɟa

He also mentions two other variants, given as [oa] and [ya]. These last two appear to have distributional restrictions; and it also seems likely that at least in some cases the different variant forms have been assigned to different specialised meanings. The first three cases, with the velar articulations, are reminiscent of some of the passive forms of Shona. Doke (1931: passim) has for the Karanga variety of Central Shona, and alongside some sporadic tokens of -lW-, such forms as

tapa	tapxa	'capture'
tımba	tımbya	'dig'
kama	kamɲa	'milk"

and for the Zezuru variety

rapa	rapka	'cure'

The complexity of the situation is increased by Tucker's (1929: 79) material, though part of it might be thought to throw helpful light on the putative phonetic processes involved. In Pedi of the Transvaal, which belongs to the Sotho-Tswana group, passives of verbs with bases ending in labials look as follows in Tucker's material

rıpa	rıpɥa	'cut'
alaɸa	alaɸɥa	'cure'
ɬopha	ɬopɥha	'heap up'
ɬava	ɬavɥa	'stab'

as against forms such as ratwa and rɛkwa for rata 'love' and rɛka 'buy'. Sotho and Tswana have regular *isinkalakahliso* forms like thotʃwa and ɬaʒwa as the passives of thopa and ɬaba. Tucker emphasizes two points about the Pedi forms: that the rounding associated with [ɥ] 'is not so palatal as the French semi-vowel in lui '

and that it extends 'throughout the articulation of the labial sound'. He summarizes

> 'Whereas in SePedi the main articulation is at the lips and the secondary articulation with the front of the tongue, in SeSuto and SeChuana the palatal secondary articulation has become the main one, there is no more lip contact, while the lip-rounding is combined with re-raising of the back of the tongue. What we hear, then, are back-labialised palatals instead of front-labialised labials'.

Tucker's explanation for this presence of [ɥ] in Pedi is that labials are rounded differently in that language

> 'In the case of labial sounds, however, the native rounds his lips and raises *the middle of his tongue* instead of the back, with the result that we hear a *palatalised w* running through the original consonant.'

The validity of this as a general argument appears to be lessened rather, though, by the Pedi forms latswa and ɛɲwa that are given elsewhere by Tucker as the causatives of lapa and ɛma The difference between the forms of the passive and causative are presumably to do with their derivational histories. Tucker does not deal with this, but Stahlke (1976) uses corresponding material in Tswana as part of the argument, summarised below, seeing the -w- element of the causative as being necessarily the manifestation of the labiality at the end of the base form, since there is no inherent labiality in the causative affix in Bantu languages. This affix is, rather, associated in many of these languages with palatal effects.

The interest in *isinkalakahliso* arises because of the supposed unusual nature of sound-correspondences of this type, and particularly as represented by the passive, where the appearance of the *isinkalakahliso* consonants, which have in general lamino-palatal articulations, is associated with the presence of a labial-velar element. Apart from the typological interest, there is interest too in the problems posed for

phonological analysis and statement. Ohala (1978), in his discussion of the typological aspect, has shown that sound-correspondences of this kind, where labials in one situation correspond to lamino-palatals in another are in fact not all that uncommon. He lists a number of cases from various groups of related tongues - amongst others, Tai, Romance and Nupoid of Northern Nigeria; and he motivates the general relationship bilabial to lamino-palatal as having its basis in auditory similarity. None of these cases, though, shows the intimate tie-up of the phenomenon with a labial-velar element, as Ohala acknowledges. Stahlke (1976) is concerned with the analytical problems posed by these phonological relationships, and takes the phenomenon as it is associated with the passive in Tswana as one of a set of examples designed to show the necessity for the introduction into phonological analysis (of the transformational-generative kind) of the notion of fusion of phonological units. He makes reference to the fact that the 'prosodic' analysis of the kind practised by J. R. Firth and his colleagues allowed for such fusion by their challenging of what Stahlke calls the 'segmental discreteness postulate'. Ohala, whose paper is intended to support Stahlke's argument, makes use of Tucker's model for Pedi, with its labio-palatal glide element, in conjunction with his own earlier claim for 'the phonetic naturalness of labials shifting to dentals when followed by palatal glides'. A prerequisite in this argument, and one not explicitly stated by Tucker, is a prior change of -lw- to the labio-palatal glide [ɥ] after labials, providing the correct environment for the consonantal change. This putative change Ohala refers to as the 'coalescence' of -lw-. He quotes with approval a remark by Meinhof (1932: 16) about a process in which 'sounds...exchange their quality'; but this is not what is happening here. Meinhof, like Bleek, includes this remark under a section called 'Transposition' - but rather cumulation, and not exchange, is what is involved in the examples that these writers provide, and in 'coalescence' Ohala had the right word at the outset. Endemann (1876: 19) has the same image, discussing these consonantal phenomena in Sotho under the heading of 'Wandlungen und Verschmelzungen von Lauten'.

Both Stahlke and Ohala, then, wish to see the effects associated with the passive as arising from the complete overlap of the phonological properties of labiality and palatality. In their analyses the

labial-velar glide of such passive forms as *gqitywa* 'be finished' is the representative not so much of the -w- of the passive -ɪw-, but more of the labiality at the end of the base in *gqiba.*; it is the result of movement from this *rounded* intervocalic plosive ([c']) to the following non-rounded vowel [a]; and it happens to fit phonetically with the authentic passive affix. In this [c'] there are coalesced the palatality –ɪw–, the stop articulation of the [ɓ], and the labiality of both the [ɓ] of the base and of -ɪw-. Ohala makes reference to the term 'feature shuffling' coined by Henderson (unpublished 1975) to designate this effect - a term which is reasonably apt as long as the image is not taken too literally, since cards in a pack are discrete items with each its own exclusive space!

Louw (1975/6) gives an interesting range of phonetic manifestations of passive forms over a large set of relevant language varieties. He shows that a number of the phonetic events that might be hypothesized as stages in the development of the fully-fledged *isikakalhliso* can in fact be attested. One such is a phonetic form that Louw writes as -rɔbʒʷa (for the verb -rɔba 'break'), which he finds in certain Northern varieties of Tswana and which forms a link between the -bʊa of Venda and the final widespread version -dʒʷa. These forms show how very unhelpful monolinear transcriptions of this kind are when we are trying to secure insights into phonetic developments. The form -rɔbʒʷa looks as though it could contain two separate tokens of labiality, one at [b] and one at [ʷ] (since [ʒ] is not necessarily rounded by convention); and, taken literally, this might be taken as evidence against Ohala's (and Stahlke's) claim that the labiality of the modern passive is the manifestation of the labiality at the end of the base. A more detailed and consistent exposition of the labial and palatal components of a form such as this would allow it to be better assessed and utilised, both as a member of a chain of hypothesized stages in development and as a viable phonetic realisation for a particular phono'ogical matrix.

Work carried out on the phonetics of Xhosa with a young male adult native speaker from iQonce (King William's Town) suggested that the disposition of the spoken material relating to the passive verbal forms of a modern Xhosa speaker is in fact in accordance with the

underlying phonological elements and patterns sketched by the writers whose work is summarised above. For example, the middle portion of *uhlatywe* (the passive of *hlaba* 'stab') in *uhlatywe nguye* 'he was stabbed by me', in which we have to do with the constructed abstract sequence -ɓ+iw- is phonetically [ɕ'ɥ]. Now this is at first blush not particularly surprising. Since [w] is rounded we might expect rounding at [c']; and as this is palatal we might expect frontness at [w]. And the same can be said about the rounding and palatalisation shown in the transcriptional record for the [ʃ] of orthographic *nihlushwa nguye*, 'I am teased by him' (from *hlupha* 'tease'). But none of these things need be. Effects such as fronting, backing and rounding are in principle free to be aligned with other articulatory elements in any of a number of ways: and there is no *a priori* reason for rounding be aligned with the plosive element in the first of these examples or for rounding and front resonance to be associated with the lateral in the second. It is not necessarily the case that all resonances harmonise, as it were, from one segment to the next in a unique or a consistent way. In a sequence of [g] and [ɪ], for example, the articulatory dynamics might produce any of a number of outcomes - a leftwards coarticulation, giving [ʒ] before a stable [ɪ]; a rightwards coarticulation, [gɪ]; neither ([g] and [ɪ] unaffected, giving [gɪ]); or both [ʒɪ]. Different languages do things differently: Polish, for example, is usually conventionally presented with [ʒi] for orthographic *gi* (Biedrzycki 1978), whereas my transcriptions of Hausa show [gɪ] for the corresponding combination in the Hausa orthography. And there are, of course, intermediate stages; English *geese* and *key* are usually said to have [g˖] and [k˖], an intermediate stage not given in the cardinal scheme above. Again, it is possible, for, say, laterals of relatively dark resonance to precede relatively front-resonance vowels or for resonances of the clear or dark kind to change whilst some other (the 'main') articulation is being held constant. This second effect is quite common in laterals and nasals, giving [¬], for example, as a single intervocalic consonant. The conventions governing what happens may indeed in some languages be organised regularly in a relatively superficial way around, say, linear juxtapositioning; and a leftwards mode of overlap in such a

configuration may be the most general one universally. But other modes of overlap (including its absence) may instead be organised around the presence at a deeper level of such things as boundaries or what we might call 'submerged' features. Kelly and Local (1989) illustrate and discuss a number of cases where such effects are shown to operate in ways not in accordance with a simple (eg leftwards juxtapositional) coarticulatory model.

The fact that there is consistent clearness *and* rounding over what are phonologically -Ciw- structures in these particular Xhosa passives.has to be taken together with similar facts in the non-*isinkalakahliso* cases. Clearness and rounding in the [l] of *ibhalwe* is a case, for instance, in *incwadi ibhalwe* 'the book was written'. In *isithandwa* 'lover' (='one who is loved') the final syllable is noted as [n̪d̪wa] . Here the last vowel is of the *same* quality as that of *thanda* 'to love' - it is not *backer*, as we might expect if following expectations of a simple CV leftwards coarticulatory model. The next transcriptional detail to notice is that the [w] of this word is *clearer* in resonance than in eg *ikhwapa* 'armpit' or *isiqhwala* 'cripple'. The same observations hold for *-dwa* in the phrase *bancedwa bonke* 'all were saved' and in general for the passives of bases ending in the dentals [t d s z n l]. The final syllable of *bacwedwa* I find transcribed with [a] in my material, whereas I have [ɣ] for the corresponding syllable of *kuhlwa* 'evening'. There is, then, evidence of overall palatal quality in these passive endings, which we can meaningfully account for by identifying it as the phonetic matter relating to an underlying -i-. Then the overall palatal quality at corresponding points in the passive of other verbs of the same general structure ($(CV)_nC$-), such as *botshwa* 'be bound', *thunywa* 'be sent' can be taken to be similarly assignable.

In certain types of verb, as we have seen in examples above, *isinkalakahliso* consonants are absent, and the passive is produced by the use of what has been called the 'basic form of the passive extension' (Louw 242), that is, the one in which *-iw-* appears. Most commentators leave these out of their analyses, though it would be preferable that they should be included. These verbs, in fact, present a classic case of the type of phenomenon that Firthian phonological analysis was meant to deal with, in that they are typified by a number of apparently discontinuous and disparate phonetic features. These are

(i) zero consonant at the beginning of the base, and
(ii) the *-iw-* infix following it.

two things that appear to be phonetically unrelated. But in fact there is a commonality between the beginning of the verbal bases and the extensions in these verbs. The verbal noun prefix in Xhosa is *uku-*, and before vowel-initial bases this is either *uk* - (before rounded vowels) as in *ukumba* 'to dig' (passive *ukumbiwa*) or *ukw-* (before front vowels) as in *ukwenza* 'to do'. And, whilst in verbs that have consonant-initial bases the *uku-* is not present in personal forms, in verbs with vowel-initial bases a *ku-* or *kw-*is retained throughout; it is a permanent marker. So the approach to *isinkalakahliso* that will be suggested here is that this class of verb be taken as phonological 'labiovelar pieces', where 'piece' is a preanalytical abstraction. In them, as distinct from verbs with consonant-initial bases, there are two bouts of labiovelarity. The first bout of labiovelarity is that arising from the junction of prefix plus base in the form of [kʊ] or [kw]; and the second bout is of course the [w] of the passive affix. The passive element might be regarded as a 'labio-palatal piece', having, as it does, its -VC- structure manifested by the abstract -iw-. Verbs, then, in which the labiopalatal piece is entirely *included within the domain* of a labiovelar piece, in which, that is, the verbal base is *flanked* by labiovelarity, are not amenable to the working of the *isinkalakahliso* effect at the end of the base. This seems to be an entirely reasonable outcome from the phonetic point of view. In these verbs, a variety of close front vowel is present in the phonetics of the passive-affix. The word 'variety' is used here as the vowel of this infix is usually [ɪ], that is, a good deal less than maximally front in these pieces dominated by velarity.

Verbs like *bujiswa* above with dual manifestation of the passive element are usually explained on the grounds of the morphologisation of *isinkalakahliso*. This idea was first put forward by Bleek (1862:54)

> 'It may be, however, that these cases of apparently far-working phonetical influence are rather to be explained as formations caused by analogy, or as grammatical inferences of the natives.'

and has been endorsed by later scholars, particularly Herbert (1977). If this claim is correct there may be little that can be said about the phonology of this class of verb. In any case my examples of this are very few. It will be remembered here that the examples of the locative given above included a set in which there is and a set in which there is not *isinkalakahliso*, with no apparent phonological motivation.

The mechanisms involved for the diminutive and locative must be different in detail, since different classes of sounds are involved in both the bases and the affixes. But for all these cases a combination of labiality and palatality is in operation whereby the features present are rearranged or 'shuffled'. The new coordination of the features over time is often such as to allow for its 'grossing up', in broad terms, as a sequence of new segmental types. These segmental types may be quite easily captured later in a phonemic transcription or translated into an orthography. But neither of these is necessarily particularly illuminating when it comes to explicating the workings of the phonological and historical processes involved or making a general statement.

An ideal interpretation of *isinkalakahliso* in the Xhosa passive would

(a) bring together those verbal categories that have the distinctive consonants with those that have [l]
(b) avoid the distortion of the phonological shape or identity of the verbal base by introducing a 'change' or 'replacement' of some item
(c) account for the non-appearance of the *isinkalakalhliso* consonants by appealing to general phonological principles of the same kind that are held to underlie its appearance
(d) take into account and be consonant with all of the observed detail of the impressionistic phonetic record.

Some of the earlier analyses have included, more or less explicitly and with greater or lesser degrees of formalisation, (a) and (b) above. In this paper I have tried to move towards the incorporation of (c) and (d) into the general approach.

Isinkalakahliso means 'palatalisation' in Xhosa, from *kalakahla* 'palate' plus the causative suffix we have met above. But the English names used in the literature vary, depending on just which part of this complex phenomenon is focussed on. Some writers, such as Doke, call it 'palatalisation' too. But for him, as we have seen, 'palatalisation' is connected *exclusively* with -W -, a characterisation that seems perverse and puzzling to the linguistically-schooled reader. And Tucker makes confusion doubly confounded by dealing with it, as it affects the passive, under 'Labialisation', as he makes no connection with a close front vowel. He thereby dissociates the passive from the locative, which he treats in a different part of his monograph under 'Palatalisation'. These examples show the difficulties that can arise in labelling this kind of sound-relationship. And, of course, the label 'palatalisation', as in use here, means something quite different from the same label as used in phonetic theory! In the discussion in this paper I have tried to deflect any prejudice on the reader's part by avoiding premature English labelling, but I would be happy to follow in the tradition of using the term 'palatalisation'. What I have had new to offer by way of observation and theorising does indeed go some way towards justifying the use of this term.

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CONVERSATIONAL PHONETICS: SOME ASPECTS OF NEWS RECEIPTS IN EVERYDAY TALK

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1. Introduction

Phonological theory is in a mess. The mess is of two kinds - the 'theory' isn't really theory, and there is an almost total lack of genuine interest in relating the so-called phonological analysis to a serious and sensible phonetics. These days phonology often seems to be more concerned with pictures on paper (pick up any book on autosegmental or metrical phonology) and specious universality than with the abstraction of categories from speech, the specification of their contrastivity-domains and the explication of their exponency or phonetic interpretation.

In the recent past, along with colleagues at the University of York, I have been engaged in an attempt to sort this mess out somewhat. This attempt has two distinct strands. One is work on phonological theory (Kelly and Local, 1989), computational phonology and high-quality natural-sounding speech synthesis (Coleman, 1989; Coleman and Local, in press; Local, in press; Local and Coleman, 1991). The other centres around work on phonetic detail in everyday conversation (French and Local, 1983; Local (to appear); Local, Wells and Sebba, 1985; Local and Kelly, 1985, 1986; Local, Kelly and Wells,1986).

The second aspect of our work, on the phonetics of interaction, has been concerned with showing that close attention to phonetic detail combined with conversation analytic techniques can reveal interesting and important regularities in the organisation of everyday talk. We have employed a particular kind of detailed impressionistic parametric phonetic observation to describe and understand the ways in which speakers deploy phonetic resources to undertake interactional work of various kinds. Although this work focusses on conversational interaction, it is conducted with the same theoretical assumptions as our

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general and computational phonological research. Its initial thrust came from the a concern to construct rigourous, data-respecting theories of the organisation of the sound systems in languages. As such it represents what we take to be a serious attempt to get to grips with phonetic detail and, in a Firthian manner, 'renew the connection' of the analysis with the behaviour of everyday speakers.

In this paper I will discuss some analytic observations arising from this second strand of our work on the phonetics of everyday conversation. The statements I make are intentionally restricted in scope for it is clear that only by conducting tightly organised micro-analyses of talk can we hope to come to a proper understanding of the general architecture and functioning of speech in interaction.

2. Preliminaries

The particle 'oh' turns up in a wide variety of forms and locations in everyday conversation. It may be employed as a way of displaying 'sudden remembering' (Jefferson, 1978: 221-222) and it is one of the many ways of displaying affiliation or interactional alignment with coparticipants.

The impetus for this work comes from an extraordinarily interesting paper by John Heritage (1984). In that paper he discusses in detail the functioning and sequential placement of 'the particle "oh"' which is 'used to propose that its producer has undergone some kind of change in his or her locally current state of knowledge, information, orientation or awareness.' (299) What I present here is an attempt to build on Heritage's analysis and to try and unpick some of the phonetic aspects of 'oh' in its function as a 'change-of-state token'. In particular, I shall try to highlight the extent to which phonetic parameters are intertwined with lexis and syntax in the interactional functioning of 'oh'. In doing this I shall point up the need to be very careful in assigning 'meaning' to pitch contours. In order to make sense of the phonetic details we observe, the analysis must be situated in an interactional framework where the categories of the analysis are carefully warranted, or justified, by the interactional behaviour of the participants themselves and not simply by the armchair intuitions of the analyst. This requirement is one of the central tenets of conversation analytic (CA) research. At the heart of CA is an attempt to come to an

understanding of the skills which ordinary speakers deploy in constructing and participating in socially organised interaction. This involves the recognition that contributions to interaction are 'contextually oriented' (Heritage, 1984: 242). Heritage observes that:

> 'This contextualization of utterances is a major, and unavoidable, procedure which hearers use and rely on to interpret conversational contributions and it is also something which speakers pervasively attend to in the design of what they say.'

On the whole, linguists have been singularly reluctant to address this aspect of everyday language behaviour. It is salutory that even in the hey-day of sociolinguistic studies little attention was paid to the formal linguistic correlates of *interactional* behaviour. One British linguist, however, was notable for his interest in such matters. In 1935 J R Firth called for a form of enquiry that treated speech forms as contextualised productions. In making his appeal Firth was careful to warn against developing nothing more than 'a loose linguistic sociology without formal accuracy' (31). The conversation analytic strategy of research is one way of answering this type of warning. Conversation analysis requires that any analytic claims about social interaction be warranted by means of 'participant orientations'. That is, the analysis proposed must be tied to, and grounded in the observable behaviour of participants in the interaction. This stringent requirement reflects an endeavour to make analytic claims commensurate with a participant's analysis. CA thus has important implications for all studies of spoken language in that it provides a formal method which can free analysts from traditional reliance on their own intuitions.

The work I report on here is still in a preliminary state, although, as I will show, there are interesting systematicities to be elicited from this data and provisional analysis. Consequently, the paper will concentrate on the description of a representative selection of data fragments with a minimum of theorising.[1]

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[1] The data fragments are drawn from some 20 hours of British and American English tape-recorded telephone conversations. Although I have been selective in the fragments I present, in order to give some range of

2.1 Phonetic characteristics of Freestanding Oh as a display of 'news receipt'

In order to give some preliminary indication of the focus of this paper consider data Fragments 1 - 6: (The representation of the data fragments retain Gail Jefferson's original transcription conventions. For an explanation of these conventions, which are those routinely adopted in the Conversation Analysis literature, see Atkinson and Heritage, 1984: ix - xvi.)[2]

(1) NB 1.6: 2

Emma: Yeah. I thought maybe Carl wz out albacore fishin.

Lottie: He went out marlin fishing last night.

→ Emma: ↓Oh:

(2) NB II.1: 2

Emma: Bud's gon'play gɑ:lf now up Riverside he's js leavin'

(0.2)

→ Lottie: Oh:.

(0.5)

Emma: So: Kathern' Harry were spoze tuh come down las'night but there wz a death'n the fam'ly so they couldn' come so Bud's as'd

---

possibilities, I do not think that I have misrepresented what is going on. The turn of interest is indicated by an arrow in the margin.

2 Although I employ conventional conversation analysis transcriptions throughout, I have detailed impressionistic parametric phonetic records of relevant parts. I also have extensive corroborative acoustic analysis of the features I discuss.

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Bill tuh play wih the com'ny deal so I guess he c'n play with im ↓so

Lottie: Oh:: goo::d.

Emma: WHAT A MISERBLE WEEKE:ND.

(3) Rah II: 1

Jenny: =Hello there I rangy'earlier b'tchu w'r ou:t,

Ida: =Oh: I musta been at Dez's mu:m's=

→ Jenny: ØaOh::. h=

(4) Rah B 1DJ(12): 1

Ida: Ye:h °h uh:m (0.2) I've jis' rung tih teh- gh tell you (0.3) uh the things 'av arrived from Barker'n Stone'ou [:se,

→ Jenny: [Oh::::

(.)

Jenny: Oh c'n I c'm rou:nd, hh

(5) HG II: 25

Hyla : So I don'know'f ah'll g'char] ged the seventy fi'c(hh)ents(h)'r not

Nancy: =No I don't think you will but- (.) might git charged something=

(0.3)

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→ Hyla: Oh:.=
Nancy: =Unle: - you know w't you shoulda do::ne?=
Hyla: =Call'the operator en said I gotta wrong [number,]
[ ]
Hyla: [u-Ye:a:]h,=

(6) Trip to Syracuse

C: She decided to go away this weekend.=
E: =Yeah
C: °hhh (.) So that (.) y'know I really don' have a place ti'stay
→ E: °hO:::h. (0.2) So you're not gonna go up this weekend?

In the current data all the freestanding news-receipt 'oh's' exhibit a number of common features:

(1) they may or may not have an initial glottal stop but they never occur with a final glottal stop (cf the Question-Answer-Oh sequences discussed below).
(2) They are all done with falling pitch movement (which ends low in the speaker's range) although the range and starting pitch height varies from token to token.
(3) They are are variably extended in time, though typically they are rather short in duration and done with tense articulatory setting.
(4) They may be accompanied by creaky voice quality but not by breathy voice quality.

(5) They are typically diphthongal - and close back (either throughout or in the closing part of the diphthong).
(6) They are often produced in the environment of pauses (usually following micro-pauses).
(7) As Heritage (1984) indicates they routinely terminate news-telling or informing sequences and subsequent talk is done by the oh-producer. That is, when speakers deploy such oh-tokens, they are typically placed at points in the talk where the informing in progress is possibly complete or may be strategically deployed to signal that as far as the 'oh-producer' is concerned the news-informing is for practical purposes complete.

Evidence for the sequence terminating potential of these oh-tokens can be found in both sequential and phonetic aspects of the talk. We can observe that we routinely find new topics (or reversions to previously curtailed topics) being started after such oh-productions (NB 1.6:2; NB II.1:2). These topic changes are frequently lexically marked with disjunctions such as 'but' (Rah II:1) and with marked upgradings in pitch and loudness features of the utterances (NB 1.6:2; Rah II:1) . Another possibility is that the oh-producer performs a subsequent turn-soliciting question (Rah B 1.1.12:1; Trip to Syracuse; HG II: 24) - in itself a nice piece of evidence that the producers of these oh-tokens are sensitive to the sequential implications in that by employing one of these tokens they have effectively terminated the telling sequence and that this gives them the opportunity/right/necessity of doing the next turn at talk.

From these fragments it is will be seen that the pitch characteristics are very constrained; only *falling* pitch movement is illustrated. One account for this pitch choice is that a falling pitch contour here strongly projects finality/completeness (a common assertion in the intonational literature but see Local, 1986 and Local, Kelly and Wells, 1986 for a detailed refutation of this claim), and that coparticipants orient to this in not continuing with their talk or in proposing topic changes. But what happens if 'oh' is not produced with

falling pitch? What if it were to be produced with rising pitch? Does this get the informer to progress the informing? Somewhat unexpectedly, when I searched through the data I had difficulty in finding news-receipt 'oh's' done with anything but falling pitch. There are, however, two exceptions. These are shown in the fragments following where the oh-tokens are done on both occasions with rising pitch. Both are somewhat more complex examples but significantly neither straightforwardly supports the notion that the pitch contour is central to determining the terminating potential of freestanding 'oh'.

(7) NB II.1:1

```
   Emma:     Well Bud hadtuh play go:lf uh Thursdee. (.)

             So'e

   Emma:     [didn't take] Sa-uh f-] Fridee o:ff s     [o
             [                      ]                  [
→  Lottie:   [Oh : : : ]:  : : :    ]                  [Yeh
             rode

   Lottie:   down muh my bi:cycle th[ere en:nu:h h] uh=
                                    [              ]
   Lottie:                          [O h : : : : ?]

   Lottie:   =wz nobuddy wa(h)s the ↑:  :re.

   Emma:     On ↑Fridee hu[:h?
                          [
   Lottie:                [Ye:ah.

   Emma:     O[h (that's] °a se:h°)
               [        ]
   Lottie:     [I thought]

   Lottie:   Ye:h.
```

(8) NB II.2.2

```
   Emma:     [°hhhhh]Budjs lef'  ]t'play go:lf he's
             [       ]
             [(0.4)  ] °Y e h  ah°]
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      Emma:    gotta go tuh Riverside=
→     Nancy:    [↓  o  h  :  .]
               =[             ]
      Emma:     ['nna comp'n]y dea:l so, °t°h[hhhhh
                                             [
                                             [Oh:.?
      Emma:    ↑GOD[it's bih-]
                   [         ]
      Nancy:       [Tuh River]side tihda:y?
      Emma:    °hhh Yean they: theh gun'tee off et
               twelve<it's a comp'ny dea:l so (.)
               th'couple wz spozetih come do:wn tuh (.)
               la:s' ni:ght'n yuhknow k-Harry en Kath'rn
               ther uh keh cz Harry wz gunnuh play k-
      Nancy:   Oh[:.
                 [
      Emma:      ['n comp'ny en then °hhh there wz a
               death in theirfa:m'ly so: (.)    [hhh
                                                [
      Nancy:                                    [Aww:::.
```

In fragment 7, the rising pitched 'oh' is done in overlap with Lottie's turn ' Yeh rode down muh my bi:cycle there en:u:h huh '. Lottie does then indeed appear to continue but the continuation ' wz nobuddy wa(h)s the↑::re.' does not amounts to very much of a development of the telling and it falls to Emma to pursue the informing with her turn: 'On ↑Fridee hu:h?'. One thing to notice here is that, standardly, news receipt 'oh's' are achieved in the clear. (This is, of course, partly a product of them being produced where tellings/informings are complete or potentially complete.) And here Emma's rising pitched 'oh' is placed at a point in Lottie's turn which is potentially complete; so the 'continuing' in Lottie's talk might simply be contingent. Moreover, Emma's oh-token is, in terms of its phonetic constitution, rather

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different from the other 'oh' tokens. It is not produced as a diphthong or as a close back (rounded) vocoid instead we have a monophthong of a back open somewhat unrounded quality (see below for further discussion of such phonetic characteristics in the discussion of freestanding oh-tokens in Question-Answer-Oh sequences).

In fragment 8 the rising pitched oh-token is produced at the end of Emma's turn which begins with an out-of-the-blue announcement: 'Bud js lef' t'play go:lf he's gotta go tuh Rjverside='. It is preceded by a falling pitched oh-token which is placed at a possible telling-completion point (after 'go tuh Rjverside'). However, this first oh-token (which is phonetically like those described earlier) gets overlapped by Emma continuing "nna comp'ny dea:l so' (a turn-yielding construction with a trail-off conjunctional (Local and Kelly, 1986)) perhaps displaying that although the oh-token though was placed at a possible completion point she had more to say. Notice though that, although Nancy produces a rising pitch oh-token, Emma does not orient to it as being a news-receipt which provides for the possibility that the telling is not yet complete. Although Emma is the person to produce the sequentially next talk, instead of expatiating on Bud's golfing trip, she begins an exclamation which prospectively opens up a new topic: '↑GOD it's bih-'. This utterance has the phonetic characteristics of new topic starts: specifically, it is louder and higher in pitch than preceding talk. It is not until Nancy produces the question-framed solicit 'Tuh Rivgrside tihda:y?' that Emma provides an extended version of her news announcement which in turn gets a high-to-low falling pitched oh-token from Nancy again placed at a possible completion point in the telling. However, this too gets overlapped with Emma doing a continuation which ends, similarly to her first with a trail-off 'so:'. This utterance is then followed by a sequence terminating monophthongal oh-token of a somewhat advanced and unrounded, back half-open quality which is somewhat different phonetically from the qualities observed in oh-tokens considered to this point (for details see Q-A-Oh sequences below).

In summary then, on the basis of the data under consideration, freestanding oh-tokens which display news-receivership have a number of recurrent phonetic characteristics and are designed and oriented to by other participants as relevantly telling-final or topic-curtailing. They are

typically produced with falling pitch, but, on the basis of the two 'exceptions' discussed above, pitch would not, on its own, appear to be a determining feature of their interactional function. If one of the functions of 'oh' in these sequences (no matter what its pitch characteristics) is to propose that its producer was previously uninformed but is now informed, we could see that an entirely appropriate thing for the news-teller to do is to terminate the telling on the basis that speakers avoid telling recipients what they already know (Grice's maxims). To pursue a telling after the production of 'oh' then might reasonably be seen as 'interactional overkill' unless, of course, talk from the 'now-informed recipient' could be taken to indicate that their 'informedness' was incomplete.

2.2 Oh with additional turn components

As John Heritage indicates (1984: 302) free-standing oh-receipts of prior informings are comparatively rare. Indeed the examples I have presented represent the entirety of those I could find in the current data. It is far more common to find oh-initiated turns with additional structure. Typically this is of two kinds (1) some sort of assessment formulation which displays that the producer is dealing with particular aspects or implications of the informing - treating it as carrying good or bad news (eg *Oh no, Oh wow, Oh good*) or (2) Oh plus some kind of next-utterance soliciting component - typically a partial repeat or reworking of the verbal element of the prior informing utterance (eg *Oh you did did you, Oh have you, Oh they're not*). Fragments 9 - 16 illustrate the first of these types.

(9) NB IV. 7: 6

Emma: I:'ve quit s:mokin ↓yihknow en evryth*ing hh

(0.7)

Barbara: Well wenjih stop tha*t.

Emma: THE DAY YOU LE:FT.h

(0.6)

Barbara: Left wh<u>o</u>:re.

Emma: From h<u>e</u>re in Sept<u>e</u>mber=

Barbara: =e-H<u>o</u>w m'ny c<u>i</u>garettes yih had.

(0.5)

Emma: ↑↑N<u>O</u>gh:ne.

→ Barbara: Oh r<u>ea</u>↑l<u>ly</u>?

Emma: N<u>O</u>:.

(.)

Barbara: ↑Very ↑go<u>o</u>↓•:d.

Emma: VER<u>Y</u> good.= = °<u>hhh</u> ↑WILL <u>Y</u>OU ↓AH'LL k-

uhAh'll CALL [<u>YIH</u> D U H]MORROW 't=

(10) NB II. 2: 1

Emma: °hh How you ↑d<u>o</u>in.

Nancy: °t hhh Pretty g<u>oo</u>d I gutta r<u>ai</u>:se . h

°hh [hh
[
Emma: [<u>Kuu</u>:u [d.
[
Nancy: [↑Yeh tw<u>o</u> dollars a week.h

(.)

→ Emma: <u>O</u>h[w <u>o</u> : w.]
[ ]
Nancy: [↑↑uh:::h]uh hu [:h hu:h↑]
[ ]
Emma: [Wudee gun:]<u>do</u> with it

a:↓ll.

Nancy: Gol' I rilly I jis don't know how ah'm gunnuh spend all that money.

(11) NB II. 2: 4

Emma: =°hh ↑Jackie looked u:p↑ °h Hey that wz the same spot we took off fer Ho:nuhlulu

(0.3)

Emma: Where they puut him o:n, (0.6) et that chartered pla:[ce,
[
→ Nancy: [Oh: ri↑lly?
[
Emma: [y:::Ye:ːah,

Nancy: ↑Oh: fer heaven ↓sa:[kes,
[
Emma: [ExA:Ctly

(12) NB II. 1: 2

Emma: Bud's gon'play go:lf now up Riverside he's js leavin'

(0.2)

Lottie: Oh:.

(0.5)

Emma: So: Kathern' Harry were spoze tuh come down las'night pbt there wz a death'n the fam'ly so they couldn'come so Bud's as'd Bill tuh play wih the comp'ny deal so I guess he c'n play with in ↓so

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→ Lottie: Oh:; goo:d.

Emma: WHAT A MISERBLE WEEKE:ND.

(13) HG II: 16

Hyla: Getting my hair cut tihmorrow, =

→ Nancy: =Oh rilly?

(.)

Hyla: Yea:[::h,

[

Nancy: [Oh so soo:n?

(14) Rah B.1.VMJ(10): 2

Vera: °hh Uhr:m, uh Val u-ih it's uhr birthday tihday so she's gon do:wn fer a: (0.2) eh: birthday present off Freddy.

→ Jenny: °h Oh l[ovely.

[

Vera: [Eh: b't tho'll be up any ti:me now en ah thought oh well ah'll jis give yih a remindih [yih know

(15) Rah B.2.JV(14): 8

Jenny: I'm'nna do s'm spaghetti'n: ( ) n- eh::meatballs f'teafuh this lot now,

→ Vera: Oh lovely.

Jenny: Cz they didn't have u they only had fish fingihs'n chips fih dinnuh,

Vera: °eeYes.°

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Jenny: B't thez no↑thing in to:wn.=

Jenny: =Mahrks'n S[penciihs shelves w'↑c l e a : u h.]
[ ]
Vera: [Well they wouldn'stay fer a meal.]

(16) NB II. 3: 5

Lottie: En Ruith uh: this friend a'mi:ne oh: °hhh
well it (.) e-eh sh- I let 'er
stay et the 'wailan hou:se: >over the
week<. So we're goin uh: (.) e:-ch
t'morruh morning ou:t.

→ Emma: Oh: good. Gunnuh rent a boa:[t? er]
[ ]
Lottie: [Ye:::]ah=

Emma: =Ah[hah?]
[ ]
Lottie: [Ye:]ah.

(17) Frankel TC 1. 1: 2

Geri: hhuh[heh .
[
Shirley: [°hh So 'e tried tih jump in th'car.

( ): hh

→ Geri: Oh: boy,h=

Shirley: =cz I wz Js' getting ou:t.=

Geri: =S[o didju]interduice 'er?
[ ]
Shirley: [( )]

Shirley: Of COU: rse .

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Like the freestanding oh-tokens discussed above, these oh + assessment turns routinely occur/are placed at the termination of a topic/news-informing. In fragment 10 Emma's *oh wow* which is produced in response to Nancy's news about being given a pay-rise, simply gets a kind of laughter response from Nancy. It is not until the in-overlap question from Emma: 'Wudee gun: do with it a:↓ll.' that Nancy produces further on-topic talk: 'Gol' I rilly I jis don't know how ah'm gunnuh spend all that money.'

In fragment 12, Lottie's 'Oh:: goo::d.' receipt of Emma's news about Bud's golf trip and the cancellation of Katherine and Harry's visit because of a death in the family, is delicately placed after the turn-yielding trail-off production of 'so'. It is immediately followed by a topic-changing exclamatory turn from Emma (the news-producer) which is produced with increased loudness and overall higher pitch than the preceding turn. Fragments 15 and 17 also evidence the disjunctive phonetics associated with topic starts or restarts (Local, to appear produced after an oh+ assessment turn. In 15, for instance, Vera produces 'Oh lovely' in response to Jenny detailing in what she is cooking for tea. After this turn Jenny does a brief account which serves to motivate her news. Notice here Jenny's minimal response to this '°eeYess°.', after which she offers no further talk or pursuit of topic, can be taken to indicate that her 'Oh lovely' was indeed designed not to be a larger topic-extending turn. What we then get is Jenny producing 'B't thez no↑thing in to:wn.' which restarts a topic (minimally begun much earlier in the conversation) and is explicitly marked with the lexically disjunctive 'but'. This utterance is characterised by an increase in loudness, in overall pitch height and pitch at its beginning which contrasts with her previous (accounting) utterance.

Although we can observe some similarities with freestanding 'oh', from a phonetic point of view these oh-tokens + assessments are rather different. While all the freestanding oh-tokens were produced with dynamic pitch movement, the pitch associated with these oh + assessment tokens may or may not be dynamic. However, they do share with the freestanding tokens the fact they are all produced with initial glottal stops and have utterance prominence (are stressed). Moreover, if the oh-producer is a speaker of an English accent where the phonologically mid back long item in the V-system has diphthongal

exponents, these oh-tokens, like those of freestanding news-receipt 'oh', will be produced as closing diphthongs.

The utterance as a whole, can be, and is often, done with a terminal rising pitch movement. With the exceptions of fragments 9, 11 and 13 all the oh + assessments in the fragments illustrated (and this is the general pattern) are done with terminal falling pitch movement. Like the falling pitch movements discussed earlier we always find these utterances ending low in the speaker's pitch-range.

The oh-tokens, in these terminal-falling utterances may themselves have falling pitch movement associated with them. I can find no generalisation which would determine *when* they have or do not have such dynamic pitch movement. Significantly, the three fragments where the oh + assessment has final rising pitch movement are all cases of *oh really*. On no occasion do we find utterances such as *oh good*, *oh lovely*, or *oh wow* produced with dynamic rising pitch. In retrospect this may seem obvious, given the kinds of pragmatic work which these oh + assessments can be seen to be doing. But its obviousness trades on a naive and unexplicated sense of the 'meaning' of rising pitch. As I have already suggested such an issue may not be nearly so transparent, or well understood as the literature on intonational meaning might lead us to believe. Notice, in this context, that the productions of *oh really* with a rising pitch contour, function in a very similar fashion to all the other oh + assessment tokens and are similarly placed and treated in the course of the interaction - they occur at telling-termination points and they do not appear to engender more on-telling talk from the other participant despite the occurrence of rising pitch. So, for instance, in (9) Barbara's 'Oh r<u>ea</u>↑<u>lly</u>?' which responds to the prior informing (concerning Emma having giving up smoking) is followed by a reconfirmation of the prior information: '<u>NO</u>:.', from Emma, which in turn is followed by assessments from both participants. After this there is a reversion to prior topic concerning Barbara's visit. (As Jefferson, (1981) notes this group of turns - (1) news announcement, (2) 'Oh really?' (3) reconfirmation and (4) assessment - is a regular way in which 'Oh really' news receipts run off. In sequences with 'Oh good' or 'Oh lovely' I have observed that it is quite common to find that the post-oh turn contains some kind of brief account (cf Rah B.2. JV(14): 8) which motivates the prior news-telling.)

Similarly, the 'Oh <u>r</u>ill<u>y</u>?' produced by Nancy with rising pitch movement, in HG II: 16 simply gets a reconfirmation from Hyla: 'Yea:::<u>:</u>h'. Further talk is not done by Hyla, who made the news announcement: 'Getting my <u>h</u>air cut tihmorrow,', until after Nancy's oh-prefaced clarification utterance: '<u>Oh</u> so soo<u>:</u>n?'. Again then, we can observe that it is the constituency of the oh-utterance as a whole (its lexical, syntactic and phonetic shape) rather than any single aspect (eg pitch) which work for its interactional meaning and function.

2. 3 Oh plus partial repeats of prior

When we come to examine turns with the second class of oh + additional components we find quite a different sequential organisation operating. These turns, rather than being placed at points of completeness in the news-telling or being deployed to curtail tellings, are typically found where an informing is produced as a ""hearably incomplete" news announcement. They can be seen to be engaged in work to get the news-informant to continue. They are certainly treated in this way. Fragments 18 - 26 exemplify this state of affairs:

(18) NB IV. 13: 1

```
    Lottie:   Fine how'r you[:.
                             [
    Emma:                    [°hh Fi:ne.h h[h]
                                           [ ]
    Lottie:                                [W]utchi]
                                           [       ]
    Emma:                                  [I  W E ]NT
              HOME yesterday ↓m°orning rgal °early hh=
→   Lottie:   =Oh yih di:d?
    Emma:     °hhhh En CAME BA:CK LAS'NI↓:GHT. Yeh ah
              went home'n wa:::shed 'n,hhh
```

(19) HG II: 2

```
    Nancy:    u-h↓Oh: ,
                  (.)
```

Hyla: [Bu:t]
[ ]
Nancy: [My f]:face hurts ,=

Hyla: =°W't-°

(.)

→ Hyla: Oh what'd'e do tih you.

(.)

Nancy: ↑GOD'e dis (.) prac'ly killed my dumb face,=

(20) Rah. B. IDJ(12):

Jenny: I[saw Jano this mohrning=
[
Ida: [Yes

Jenny: =in in: uh Marks'n Sp[encers]
[ ]
→Ida: [Oh you did di[dju[y e s,]
[[ ]
Jenny: [Mm:[:. °hh]

She wz buyin a ↑whole load of stuff she siz she's getting

hhh ↑huh[huh]
[ ]
Ida: [hnh]heh-ha-ha-ha

(21) Rah I: 8

Vera: uRight yeh °hh Oh I met Jano:, eh:::m yestihday en she'd hahdda foh:rm from the Age Concehrn about thaht jo:b.h=

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→ Jenny: =Oh=she=hahs?

Vera: So: eh she wz sending the foh:rm bahck

[thɐ:n you] know]
[ ]]

→ Jenny: [Oh she di-]aOH:w]'l thaht's goo:d ah'm

s- ↓pleased she applɐ: [d,
[

Vera: [Ye:s, yes she

appl- eh she: rahng up on th'Mondee

moh:rning. yih [know
[

Jenny: [M:mm Oh goo:d,=

(22) WPC 1. MJ(I): 38

Jenny: It's- the u-roo:ms seɐ:m bigguh:,

(0.7)

Marian: Yɐ:s[::
[

Jenny: [do:wnst[eh:s,
[

→ Marian: [↑Oh do the↑:h,

(0.2)

Jenny: eh: (0,3) But thev unly got the two

bedroo [:ms,
[

Marian: [°hh

Marian: Ye:s[::'
[

Jenny: [ahnd the: uh:m (0,4) kitchen: um

(23) NB 1. 1: 7

Guy: [°hhh Hey
↑how'bout sh:'ow bout She:rcliffs.c'n yih
git on nere?

(0.7)

Johnny: °khh I think so They ↑cha:rge too much
Guiy
[
→ [Oh doh they?

Johnny: Yeh ↑I ↓think soi.

(24) Rah B. 1. JMA(13):

Jenny: [°hhheh u-hOh: deah °hhh I [went round
[
Ann: [(Ho:peless.)

Jenny: =lahs' night cuz Ida'd got huhr
fuhr::niture so she'd rung me up
t'[say
[
→ Ann: [Oh hahs she.

Jenny: Mm[i:
[
Ann: [Dz it look. ni:ce.

Jenny: °hhhh Well it's ↓beautiful fuhrnitchuh.
°hh But eh:m (0.2) the table is
gohrigeous'n the che:z.[It's- it's
rou:nd.

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(25) Rah II: 17

```
Ida:      Uh I went last Wednesdih yih know °hh Oh
          ↑by the wa:y=
→ Jenny:  =Oh didche ↑keep fi:t,
Ida:      eeYhhe:[:s,
                 [
Jenny:           [Didju:=
```

(26) NB IV.13: 4

```
Emma:     Yih like tih see'er ali:ve
                    (0.4)
Lottie:   °t°hh W'l she doesn'know
          anybudd[y,
                 [
→ Emma:          [Oh doesn't[she]
                            [  ]
Lottie:                     [N o[::.]
                                [  ]
Emma:                           [°Oh]*::.°]
```

In each of these fragments we find a news-announcement which is receipted by an oh-prefaced utterance. The additional components in these oh-turns typically build on the verb phrase of the prior turn or involve some re-doing of the auxiliary of that turn. Fragments 19 and 25 are somewhat different in this respect and represent an alternative pattern. In 19 the additional components do not rework the verb phrase of the prior utterance. Rather they are couched in the form of a wh-question which builds on the the knowledge, just acquired, that Nancy has been to a dermatologist for treatment for a skin-condition.

Similarly, the additional components of the oh-prefaced turn in 25 address the implications of what has been said : 'Oh didche ↑keep fi:t'.

Jefferson (1981) discusses these 'oh-plus-partial repeat' 'newsmarks' and suggests that they typically occur in an environment 'in which a telling is obviously forthcoming, or is overlapped by a telling, or gets a telling, or is followed by a request for a telling'. Importantly, she points up the fact that in such cases talk is 'either volunteered by recipient . . . or solicited by newsmarker' (79). Thus they are rather different interactional objects from the kinds of oh-news receipts discussed up to this point.

Within this class of turns there are two phonetically and syntactically distinct types. The first type is exemplified by the instances in fragments 18, 20 and 21. In this type of turn we find the oh-token immediately followed by a pronoun + auxiliary verb (there may be additional components as in fragment 20). Fragment 20 patterns along with this first type. In the second type, exemplified by fragments 22 - 26, the organisation of the turn is such that the oh-token is immediately followed by a verbal element + pronoun (again there may be additional components as in fragment 25).

In terms of pitch configurations these two types are rather similar. In both we find turns ending with stepping down or falling pitch movement (fragments 19, 20, the first case in 21, 24, 25 and 26). The precise phonetic details of the pitch in these cases differ. In 19, 20 and the first case in 21 there is a dynamic pitch fall associated with the first auxiliary or verbal element which continues over any remaining material in the turn. So for instance, (with the syllable bearing the prominent, dynamic pitch fall underlined): 'oh whatde do to you', 'oh you did did you yes'. In the case of the second type, rather than dynamic pitch fall we find a step down from the stressed verbal element to the pronoun (eg fragments 24 and 26). Notice that in contradistinction to other oh-turns with falling pitch these ones regularly get treated as requiring the co-participant to pursue the news-telling.

The two types are similar also in respect of their possibility of co-occurrence with rising or upstepping pitch. Again, however, the precise details differ. In the first type (fragments 18 and the second instance in 21) we observe a dynamic rising pitch movement associated with the verb ('did' in both cases). In the second type we find pitch step up from

stressed verbal element to pronoun (fragments 22 and 23). A regular and systematic distinction, in terms of pitch, between the two types is found in the relationships between the pitch of the oh-particle and other items in the turn. In the first type, the oh+ pronoun part (or in the case of 'oh whatde do to you' all the material before 'do') is produced on a level pitch. In the second type there is always a pitch discontinuity between the oh-particle and the following material. So we find (i) a pitch step down from 'oh' to the next word in fragments 22, 25 and 26 (ii) a pitch step up from 'oh' to the next word in fragments 23 and 24.

There are a number of other interesting phonetic features which distinguish this class of oh+ partial repeats from other the oh-turns that I have considered so far. A first observation is that (with the single exception of fragment 19 which involves a repair at its onset) they are not produced in the environment of pauses as are some other kinds of oh-receipts. In the cases I have found, in the present conversational materials, these oh+partial repeat turns are either 'latched' (that is, produced very quickly after the completion of a prior turn, eg fragments 18, first instance in 21 and 25) or produced in overlap towards the end of the news/information giving turn (fragments 20, instance 2 in 21, 22, 23, 24 and 26).

In none of the cases I have found, of oh+partial repeat (whether of the form oh+pronoun+verbal element or oh+verbal element+pronoun), is the oh-particle accented. All the cases I have exhibit 'oh' produced rhythmically short (usually diphthongal or a close back vocoid) and unstressed. In all the oh+pronoun+further material cases there is an interesting rhythmic relation obtaining between the first two elements of the turn in that the oh element and the following pronoun are produced, unstressed, with the same rhythmic quantity (an observably 'equal-equal' relation to borrow Abercrombie's (1965) terminology). Moreover, in contrast to the behaviour of the oh-tokens discussed so far there is a systematic distribution of whether or not they are initiated with glottal stops. In the case of the turns with the structure oh+verbal element the oh-particle is regularly produced with an initial glottal stop, whereas in the oh+ pronoun types the opposite is the case (on occasion lax breathy phonation can be observed in this type).

2.4. Freestanding oh-tokens in question-elicited informings

To this point I have dealt only with oh-tokens which are produced in response to informings which are initiated by the news-bearer themselves. I want now to turn to a quite different kind of oh-news receipt which is produced as a response to informings which are elicited by means of questions. The data fragments below illustrate the phenomenon.

(27) Rah A. 1. IMJ(2): 2

```
                    [
Ida:                [Ah thi- et-y-ah: think there wz
                only about three
                things ordered was it ohr fouhr.
Jenny:          eh-u-Foh ah think theh wz two: fuh Kim'n
                two fer I:van.
→  Ida:      Oh:.
Jenny:          B't I(c) I don't know what quite.
Ida:            nNoh:. No[h. A'rright thez about three
                things theahr.=
```

(28) NB I. 6:7

```
                  [
Lottie:           [Whenyuh go:- thah (.)[yesti-]
                                        [      ]
Emma:                                   [Uh   E]xi:dee.
                          (0.3)
→  Lottie: Oh: .
```

( )

Lottie Uh[(huh?)
[

(29) WPC 1. MJ(I): 1

[
[When dz Sus'n g[o bahck.=
[
[°hhhh

Jenny: [( )
=[
Marian: [u-She: goes bahck on Sahtihdaiy=

→ Jenny: =O[h:.
[
Marian: [Ah:n: Stev'n wz heuh (.) all lahs'week'e
only went
bah'yestihda:y.

→ Jenny: Oh:.
Marian: °hhhhh So: uh 's been qui'u-he[ctic.hh gh
huh h]uh °hhhh

(30) Rah B. 2. IV(14) 1

[ ]]
Vera: [A h :]I thought ah'd a'caught]yuh ah
thought you couldacalled up fuh coffee.
Jenny: Oh:::. Hahv they'av yih visitiz
g[one then,]
[ ]
Vera: [Theh'v ↓gol:ne. Yes,

→ Jenny: Oh[:ah.]
[ ]

(31) NB 11. 2.: 5

[ ]
Emma: [Oh]ho:w'd[jih do with yer final[s.
[[
Nancy: [°u [°t I:
don'kno:w I
aven'gott'n they'll mai:l my gra:des
yuhknow bu[t
→ Emma: [Oh::.
(0.2)

(32) NB II. 2: 21

[
Emma: [Yih know
wher'e is thein,
(0.8)
Nancy: I have never had any of it retu:rned
Emma,h
→ Emma: Oh::.
Nancy: At a:ll, so:[I jist assoom thet the
[
Emma: [°( )°
Nancy: notice the e.: the= =telegram thet went
fr'm th'bank w'ss return' becuz he
didn't w:ant to accept it.
(0.4)

Emma: OH:.h

(33) HG II: 25

N: =°hhh Dz he 'av'iz own apa:rt[mint?]
H: [°hhhh]
Yea:h,=
→ N: =Oh:,
(1.0)
N: How didju git 'iz number,
(.)
H: I(h) (.) c(h)alled infermation'n San Fr'ncissc(h)[uh!
→ N: [Oh::::
.. (.) Very clever, hh=
H: =Thank you[: I- °hh- °hhhhhhhh=
N: [W'ts 'iz last name,
H: =Uh:: Freedla:nd. °hh[hh
→ N: [Oh!:,
H: [('r)Freedlind=
N: =Nice Jewish boy?
(.)
H: O:f course,=

BEST COPY AVAILABLE

```
N:          ='v [cou:rse,]
                |       |
H:              [hh-hh-hh] hnh °hhhhh=
N:           =Nice Jewish boy who doesn'like tih
            write letters?
```

Heritage (1984) remarks of such sequences:

> '... in proposing a change of state, the 'oh' receipt is once more nicely fitted to the Q-A sequence in which it participates. For the producer of a question proposes, with the production of a question, to assume the status of presently uninformed about its substance and thereby proposes as well the the respondent, in answering the question, assume the status of informed... Here then the production of "oh' confirms an answer as an action that has involved the transmission of information from an informed to an uninformed party.' (309 - 310)

Notice, in the light of these observations, that the onus for displaying the satisfactoriness of the information may be seen to fall more on the questioning news/information-recipient than in other cases where the news is proffered rather than solicited. In interactional sequences, then, where we have question-elicited information a recipients, by deploying an oh-token, propose that a possibly complete answer is acceptably complete for the present purposes. Or, in contrast, by the withholding of 'oh', or by the building of the 'oh' turn in a particular way, the questioner can display that they are proposing that the answer is, for instance, inadequate in some way, is not complete or is uninformative. This provides for the possibility that doing or not doing an oh-token in such sequences can have an effect on the production of further news/information from a co-participant. Not surprisingly then, it is fairly common to find question-elicited informings being dealt with, in the first instance, by non-oh-receipts (eg *yeah*, or *mm*):

(34) WPC 1. MJ(1): 2

Marian: °hhhh (.) °Um::° 'Ow is yih mothih by:
th'we:y.h
(.)
Jenny: We:ll she's a:,h bit bettuh:,
→ Marian: Mm[:i,
[
Jenny: [eh- She came: do:wn on:
Sahtldee:evenl[ng
[
→ Marian: [↑Oh: did
[s h e a e ,h]
[ ]
Jenny: [fih the fuhr]:s'ti:me.
Marian: Ye:s,
Jenny: Ye[s.( )- ah d]on't know whethuh she came
[ ]
Marian: [O h ↑i : .]
Jenny: ah: didn't= =ring them yestuhday,
Marian: No-o.h
Jenny: Eh:' (0.2) yihknuh ah don't n'whethuh she
came down: lahs:t ni:ght,
Marian: °hh No:.=
Jenny: =Jus depends on 'ow she fee- °hh She's
no:t just ri:ght thou:gh,

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In this fragment we see that a first response to a question-elicited informing is a 'continuation' token 'Mm::' from Marian. When Jenny provides a more specific detailing of her mothers improvement out of illness: 'She came: do:wn on: Satidee: evening' this gets a strong news receipt '↑Oh: did she::, h'.[3] Compare also the information receipt produced by Nancy following her eliciting utterance in fragment 35 'Nice Jewish bo:y' for which Heritage gives the following description:

> 'In this case, the respondent (H) confirms the inference with an utterance "O:f cou:rse," which treats the inference as self-evident rather than merely likely. In turn, this confirmation is receipted by N with a repetition of the confirmation . . . which preserves this treatment and asserts it on her own behalf. In effect, the recipient withholds a change-of-state proposal and thus retrospectively proposes that her previous, question-intoned inference is to be heard as having been a comment on something self-evident rather than an inference concerning something still in doubt.' (310 - 311)

Thus, sequences in which we find oh-responses to question elicited informings have rather different properties and potentials with respect to the subsequent development of the interaction. They also typically have a very different phonetic shape from other oh-tokens considered so far. Although all the cases I have been able to track down in the current data are done with terminal falling pitch and like many other oh-tokens are systematically produced with initial glottal stops and may be variably extended in time, they may, unlike the other tokens considered so far, be done with *rising*-falling pitch (eg fragments 29, 31 and the first two instances in 33). They may also (unlike other oh-tokens) terminate with

---

3 See Heritage (1984: 306) for further discussion of this fragment. Compare also fragment 6 (though it is not question-elicited) where E responds to C's reformulation of his informing 'She decided to go away this weekend' with a continuation oriented 'Yeah' which prompts further talk from C formulated as an 'upshot': 'So that (.) y'know I really don' have a place ti'stay'. Her subsequent oh-token, however, displays news-receipt as can be seen in part by her formulation of the consequences of C not making the trip: 'So you're not gonna go up this weekend'.

complete glottal closure (eg fragments 27, 30, 32 and the first instance in 33), and they can be noticeably nasalised. Moreover, their vocalic quality is quite distinct from any of the oh-tokens considered so far. Most frequently, oh-responses to these question-elicited informings are realised as monophthongs. Typically, these monophthongs are back vocoids, usually open or half open. Qualities vary around cardinal vowels 5 and 6; if in the region of cardinal 6 the vocoid is routinely slightly unrounded.

A nice example of the distinction between freestanding oh-token in question elicited informing sequences and in proffered informings can be seen in fragment 29. Here we find the question-elicited informing being responded to with a freestanding 'oh' which has a falling pitch movement and a vocoid somewhat advanced from cardinal 7, and slightly unrounded. This oh-token is overlapped by talk from Jenny: 'Ah:n: Stev'n wz heuh (.) all lahs'week'e only went bah'yestihda:y' which is designed to be a continuation of her preceding response to the question. Following this Jenny produces a canonical freestanding oh news receipt which is done with falling pitch movement, has clear (non-glottalised) phonation and which is diphthongal (beginning in the region of back, advanced, lip-spread,half open and closing towards a slightly advanced and open close back rounded vocoid).

One interesting aspect of the organisation of these oh-tokens is that they are regularly overlapped by further talk from the questioned party. Routinely, this overlapping talk is configured to propose that it is a continuation of the response to the question. In such places we frequently find continuation items such as 'and' (eg fragments 28, 29 and 30). In fragment 32 we find the post-oh turn starting with 'at all' which can be construed as a retrospective syntactic addition/repair to the response to question utterance: 'I have never had any of it retu:rned Emma, h'. These post-/overlapped-oh utterances warrant more investigation than I can give them here. They never occur with the phonetic characteristics of topic starts. Rather they have the pitch, loudness and rhythmic features (including tempo acceleration 'rush-throughs') which typically characterise continued utterances. They may well provide evidence for the delicate task of negotiating the extent to which a response to a question is satisfactorily complete. Despite the production of further, overlapping talk from co-participants the

production of oh-tokens in question-elicited regularly curtails the flow of talk, as the fragments illustrate.

2.5 Oh and 'surprise'

In discussing these oh-receipts of question-elicited informings Heritage points out that the production of an 'oh' receipt 'is not necessarily associated with the degree to which an answer is unexpected'. Certainly, for the fragments I have presented to this point, it would be difficult to locate any interactional behaviour which could be used to warrant any of the oh tokens as being designed as to signal the extent of expectedness of the 'news'.were systematic. Nonetheless, this is a matter of some linguistic and interactional interest for it is quite common to read in books which deal with English 'intonation' that certain 'tones' or 'tunes' have 'meanings' which could be employed for just such a purpose. For example, O'Connor and Arnold, (1961) gloss rising-falling tone when used with 'interjections' as '*greatly impressed by something not entirely expected*' (48); similarly, Roach, (1983) writes of the rise-fall that it 'is used to convey rather strong feelings of approval, disapproval or *surprise*' 119 [my emphasis];). Notice however, that although we get rise fall rise pitch co-occurring with the three 'oh' tokens in fragment 33 that they do not seem to function to signal 'surprise' or unexpectedness of the news being imparted. There is certainly no interactional evidence for such an analysis (see the quote from Heritage above). The complex rising-falling(-rising) contoured oh-tokens in fragment 33 (where the second instance is higher in overall pitch than the first, and the third higher overall than the second) are perhaps employed in some kind of desultory humour-engaged work (this is a jokey sequence with laughter particles occurring throughout). So, for instance Nancy's turn following her first oh-token is simply formulated as a follow up question. Nancy says nothing that would suggest that Hyla's response to 'Dz he 'av'iz own apa:rtmint?' is in any way surprising. Nor is there any interactional evidence in 34 that the rising-falling contour with which Marian's oh-token is produced is accomplishing such work. Rather the oh-token here would seem to be doing some kind of special 'foregrounding' of the detailing offered - that it was the first time Jenny's mother had come down stairs since her illness. The important point here is that if we want to propose that rising-falling pitch is 'doing surprise' it is essential to show that this is

indeed how the participants themselves take it and to point identify the appropriate interactional evidence. These last remarks are offered as a caveat, if one were required, against a simplistic assigning meaning to pitch contours independently of the interactional, lexical and grammatical environments in which they occur (cf Cruttenden, 1986). However, if we examine some of the oh-tokens in the present corpus, it *is* possible to find instances where particular pitch configurations do go around with what we might wish to recognise as 'surprised' receipts[4]. Consider the following data fragments:

(35) RahB. 1. IDJ(12): 2

Jenny: °h Av you seen uhr,

Ida: Ye- °h Well she's gon to m: eh: eh:

Chestuh:.

(0.9)

Ida: Ja[no:,

[

Jenny: [↑Jano hahs.

Ida: ↑Ey?

Jenny: No she hasn't?

(0.8)

Ida: Ye:s. She's go:ne,

(0.7)

Ida: She went Just before dinner.

(0.2)

→ Jenny: Oh↑:::. Oh[I (thought),]

---

4 One means of expressing surprise available to speakers is to use versions of what Heritage op cit refers to as 'assertions of ritualized disbelief, eg "yer kidding," "really?" "did you" etc.' (339).

[ ]

Ida: [She wz in suuch a]ruush,

(36) Frankel: TC. 1. 1:15 - 16

[

Shirley: [°hhh So if you guys want a place tuh <u>sta</u>:y.

(0.3)

Geri: °t °hhh Oh well <u>th</u>ank you but you we ha- yihknow <u>Vic</u>tor,

→ Shirley: ↑<u>OH</u> that's ↑<u>RI</u>:GHT.=

Geri: =That's why we were <u>go</u>ing[(we)

Shirley: [I FER↑<u>GO</u>:T.

Completely.

(37) WPC:1:MJ(1): 7 - 8

Marian: N[o : ,

[ ]

Jenny: [it's a]s:<u>a</u>fe seat fer everythin:g['ehhr,

[

Marian:

[°hh

(0.2)

Jenny: <u>R</u>eahlly,

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Marian: i-Thaht's ra[h ih tis relly ye:s:, yes,=
[
Jenny: [So:.
Jenny: =End eh,
(0.3)
→ Marian: ↑Oh:: ad didn't realahz it wz so neah
coorss it's Ma:y
next week °hh
Jenny: Ye:[s

(38) NB:II:4: 8 - 9

Emma: God I can't go inna boat fer a long
time'e siz ↑no boating er
no::,
(0.2)
Emma: [[GO:LF,]
[[ ]
Nancy: [[Bud was]n't playing go:lf?
(0.7)
Emma: No:
→ Nancy: ↑oh:↓ :.
(.)
Emma: [[°hhhh<]
[[ ]
Nancy: [[I js:<]

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(0.2)

Emma: [[N O : ,]

[[ ]

Nancy: [[thought they] prob[ably] would be]

playing] ah]

[ ]]

]]

Emma: [No:] BILL'S

]↓GAH:N] NE]X'[DOOR]

[ ]=

[°khh]

→ Nancy: [[Oh::: tha]t's r[° i g h t

] y ° e a ; h,]

=[[ ] [ ]

]

Emma: [[yih ↓kno°w] [THEY'VE ch]ecked ou:t.

]So=

Nancy: =°ee[Ya:h°

[

Emma: [°hhheeahhoo IT'S JIS KAHNA DU:LL,

Ghod whatta m::iser'ble

miser'ble:

Nancy: °tch °hhah

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Emma: w[geke:n'.

(39) NB:III:I: 3

Fran: °hhhhhh Oh: come o:n. [I could]n' j's come down the;re, hn=

[ ]

Ted: [H m ; ?]

Fran: =°t°hh I got two other kids. remember?

→ Ted: Oh:: that's ri[;ght,

(40) NB:III:I: 2

Fran: ((f)) Wul when didju guys go:::.

Sharon: Ah: Saturday? hh

→ Fran: ((f)) Oh: fer, cryin out loud. I thought it wz the e:nd'v th'mo:nth you were go:::i:[n.

[

Sharon: [Mm-mm, hh

In all these fragments the oh-tokens are done with high, wide-range rising falling pitch. And there would seem to be grounds to claim that this pitch contour was contributing to a display of 'having been misinformed (rather than uninformed) but now informed in fragments 35, 37 and 40, and of 'recollection' post a wrongly assumed state of affairs in fragments 36, 38 and 39. In fragment 35, Jenny's oh-receipt turn has a lexical formulation of her previous assumption: ' Oh I thought' which is followed shortly by what might constitute the grounds for her misinformedness 'she sid she wz getting visito:rs.' In fragment 36 Shirley's '↑OH that's ↑RI:GHT' (where oh is done with

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wide rising-falling pitch) is followed in her next turn by an explicit lexical formulation which in proposing her forgetfulness offers an account of her previous talks and also proposes that she has now undergone a change-of-state in terms of realisation (cf also 38). Fragment 39 provides two further instances of oh+ rising falling pitch contour functioning as displays of revisions of understanding. In this sequence Nancy seeks clarification about whether or not Bud (Emma's husband) was playing golf. On being told 'no' by Emma Nancy produces an oh-token realised with rising-falling pitch. Emma makes no lexical response to this, and Nancy produces a display of the assumption underlying her prior question: 'I js: [=just JKL] thought they probably would be playing' which is overlapped by an emphatic negative from Emma. Emma then provides an account of Bud's movement in part explanation which is in turn receipted by Nancy with a rising-falling pitched oh-prefaced turn which acknowledges Emma's account and her previous misassumption.

The following fragment presents a somewhat more complex instance in that the oh-token is not followed *in the same turn* by such components.

(41) WPC:1:MJ(1): 8

```
      Marian:    [[We go away nex'Suu(h)nde(h)h.
→     Jenny:    ↑Ohi(dih yil
                    [
      Marian:       [°hhh
      Marian:    eh hhin heh huh
      Jenny:     ↑Not this next.=
      Marian:    =°hh This neh-iss Sun[dee dit °hhh
                                       [
      Jenny:                           [This Sundee comi:n?
      Marian:    Did we no:t tell youi,h
                           (.)
```


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Jenny: ↑Eh: wuh
Marian: A(h ↑Ithink we must'v dun,)
( )
Jenny: (I knew I knew you w'r (goin
awa(:y bt ah d)idn'ah wz=
( )
Marian: (Y e : s,)
Jenny: =thinkin it wz(wa:l we were awa:y.

Nonetheless, examination of this fragment reveals that there is clear interactional evidence that Jenny's oh-token produced with rising-falling pitch is engaged in a similar kind of work. The oh-token is accompanied by what is most probably a version of 'do you' these last two words are produced with an overall rising contour (step up from 'do' to 'you' and a slight dynamic rise on 'you'). We have seen previously that such formulations are typically employed to get the news-informant to continue and are routinely placed as new receipts when the informing is 'hearably incomplete' or is being treated by the recipient as incomplete. The next talk from Jenny is also formulated as a question which seeks clarification of Marian's 'We go away nex'Suu(h)nde(h)h'. Marian's response is to confirm the negative question formulation.. However, Jenny's continued pursuance of the precise day in question 'This Sunday coming' is an indication that the matter is not yet resolved and that she is still not appropriately in command of the information. Marian's next utterance addresses Jenny's problem and attempts to locate the basis of her informedness: 'Did we no:t tell you;,h'. Jenny eventually provides a formulation of the extent of her informedness which offers evidence that the production of her oh-token earlier was, in part, engendered by being presented with information which stood in contradistinction to a previously held understanding: 'I knew I knew you w'r goin awa:y bt ah didn'ah wz=thinkin it wz wa:l we were awa:y'.

Oh particles accompanied by rising-falling pitch contours, then, may accomplish displays of having been misinformed and displays of forgetfulness. There are insufficient instances in the present corpus to say whether there are systematic phonetic differences between these two types of utterance. However, one property which they have in common is worth noting. The oh-particle prefaces more talk from the same speaker which has an explicit display of the previous misinformedness or forgetfulness. This distinguishes them from other oh particles with rising-falling contours, such as those in fragments 33 and 34. On the basis of the present data it would seem likely that, irrespective of the intuitions of linguists, rising-falling pitch contours with 'oh' accomplish the 'surprise' of previously misinformed precisely when they have such explicit formulations accompanying them.

3. Conclusion

As I implied at the beginning of this paper, remarkably little is known in detail about the phonetics and phonology of naturally occurring talk. Virtually nothing of interest is known of the *interactional* implications of particular kinds of phonetic events in everyday talk As long ago as 1959, David Abercrombie drew attention to this gap in knowledge. In a paper, addressed to language teachers, entitled 'Conversation and spoken prose' he suggests that one reason for this is that what 'linguistics has concerned itself with, up to now, has almost exclusively been spoken prose.' (4) He concludes that 'Genuine spoken language of 'conversation' . . . has hardly been described at all in any language, whether from the phonetic, phonological, or grammatical point of view.' (1965: 9) This paper is an attempt the redress the balance somewhat and to examine one small aspect of the phonetic organisation to be found in the everyday talk of ordinary people.

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PARAMETRIC INTERPRETATION IN YORKTALK*

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1. Introduction

In this paper we aim to show how parametric interpretation is carried out in the YorkTalk speech generation system (Coleman 1990, Coleman & Local 1987, Local 1989). We do not aim to give a complete description of the system, and in particular we have left out much which may be of interest concerning the temporal interpretation of syllables. Also we have not made any attempt to relate YorkTalk to its theoretical background, with the exception of a cursory mention of J R Firth's paper 'Sounds and Prosodies'. We welcome comments on our work, and are glad to demonstrate the system to those interested.

2. A quick overview

YorkTalk is a computer program which creates synthesis parameter files from phonological representations which are structured directed acyclic graphs with features distributed over them, as in the diagram below:

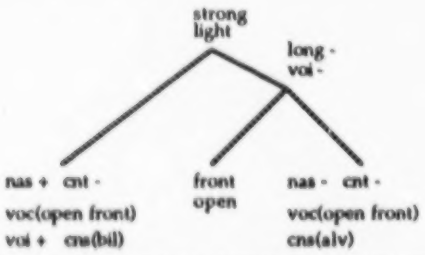

Fig 1: Partial phonological representation for "mat"

* This work is sponsored by British Telecom. Without John Local, John Coleman, Adrian Simpson and John Kelly, the system described here would not exist. Thanks to John Local for comments on earlier versions of this paper.

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The graphs are produced by a parser of English words with a grammar of English syllable structure, metrical and lexical structure. These graphs need to be interpreted in order for them to be 'made audible'. Their interpretation has to stated explicitly. Temporal relations between the constituents of the graphs are worked out in a part of the program that does not concern us here, called 't_interpret'. The resulting structures have features and timings associated with them. In p_interpret (the function which assigns a parametric interpretation to the phonological representations) the relevant parameters, which are all Klatt formant synthesiser parameters, are assigned to these structures. Note that in this context, Start and End, which appear in the diagram below and throughout this description of YorkTalk, are reference points. They do not imply that any given parameter which expones a particular phonological category starts or ends at the time values to which Start and End are instantiated.

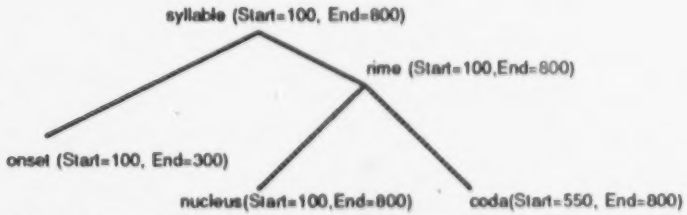

Fig 2: A temporally interpreted graph which can be p_interpreted (features have not been marked, only timings).

p_interpret goes about its work head-first. So the order of interpretation is: nucleus, coda, rime, onset, syllable.

The objects that can be interpreted are any feature or bundle of features at any node in the graph being interpreted. This means that where generalisations can be made the exponency statements can be made to match with just that bundle of features at just that node, and ignore any other feature information. For instance all the relations which can be represented by the partial description (cnt(-) nas(+) _

_)[1] might need to have the same exponency statements for some parameters. On the other hand, the parameter statements can be very specific, eg they might relate only to the structure `(cnt(-) nas(-) str(+) vol(+))`.

Parametric interpretation is, just like temporal interpretation, arbitrary (in Saussure's sense) but systematic, compositional and consistent. To put this in less abstract terms: any given bundle of features at a given place in the structure can (indeed *must)* have only one possible interpretation.

Because the synthetic parameters constitute a compositional interpretation of fragments of structure, parameter values cannot be altered (although they *can* be overlaid by something else). An example might be 'stops' in English. Their exponents include plosion and aspiration when they occur in simple onsets in English, and plosion but no aspiration when they occur in onset clusters with friction. Declarative interpretation, which serves as a constraint on YorkTalk, does not allow us to generate first a burst with aspiration and then remove the aspiration in order to achieve the unaspirated stop. The plosion must be generated without aspiration in the first place. This is not a problem since it is *nodes* and *structures* which are interpreted, in other words the *onset cluster* is interpreted rather than an onset 'stop', ie a terminal node containing a particular kind of featural information.

Before working through an example of p_interpretation, we will explain the construct of 'exponency' and consider how it is implemented in YorkTalk.

3. 'Exponency'

Phonological structures and features are associated with phonetic 'exponents', the term used by the prosodic analysts (Firth 1937, among others) for the 'real-world' manifestations of the interpretation of phonological structures. The units of phonology cannot be pronounced - they are abstract and describe structural relations within the language;

---

[1] YorkTalk is written in Prolog. Initial capital letters stand for variables, initial small letters stand for constants. Underscores (_) stand for unnamed variables. The partial phonological representation given here constitutes an example of a formal instantiation of underspecification. (See eg Gazdar & Mellish 1989)

but their presence is manifested by phonetic 'exponents'.[2] 'Exponency statements' in YorkTalk link the abstract 'silent' phonology with the noisy 'real-world' phonetic material which is speech. Exponency statements make the phonological description audible. They have to be stated explicitly though because phonological features have no inherent interpretation. For example, a feature `[nas]` need not refer to the position of the velum (which is the case in, eg, autosegmental phonology), although it could; it could also refer to much more. In other words, the relation of phonological feature to phonetic exponent is not one-to-one. One feature may have more than one phonetic exponent.

p_interpret calls all the 'exponency' statements for all the parameters in the Klatt synthesiser; there is an exponency statement relating to each parameter we use. There are statements called 'av_exponency', 'f1_exponency', and so on.

The Form of Exponency Statements

Exponency statements are of the following form: they have a list of features with which they will match, and a list of ordered pairs of the form <Time, Value>. The Start, End and Duration of the constituent are passed to the exponency statements.

The Time Field of Exponency Statements

The value of Time is worked out with reference to Start, End and Duration. Nuclei are 'relatively timed', which means that all times are defined in relation to the syllable Duration, so that any particular acoustic event is timed to occur at relatively the same place in relation to the whole syllable. Below is an example of a possible timing statement:

```
(Start, Value1)
(Start+(x% of Duration),Value2)
(Start+(y% of Duration),Value3)
(End,Value4)
```

---

[2] Phonetic exponents can also include the systematic *absence* of a particular feature as well as its presence. (cf Robins 1957:90)

Of course, different values for Start, End and Duration will result in different time values, but the internal temporal structure (the 'timing') of an interpreted constituent with this exponency will always be the same. This allows us to have one exponency statement which will apply in many circumstances, regardless of what the values of the Start and End are, and it also means that it is unnecessary to have different statements for temporally compressed syllables. The claim we are making is that the internal temporal structure of acoustic phonetic parameters is consistent, regardless of actual duration at 'run-time'.

The Value Field of Exponency Statements

The Value field is the second member of the <Time, Value> ordered pair. Values might be 'hard numbers' eg values obtained from instrumental observation of natural speech, or they might be calculated in relation to other values; another important source is refinement of the synthesis through impressionistic listening. In the nucleus, all the values are 'hard numbers'. In his papers on speech synthesis, Dennis Klatt (eg Klatt 1987) usually gives what we have called 'hard numbers'.

Parametric exponents are looked up from a database of exponents on the basis of the phonological representation. In the nuclei, for instance, all the things whose second part is `grv(_), height(close), rnd(_)` statement for f1_exponency for the second part of the nucleus. (Such generalisation is easily achieved with unification[3]). In this way, the parametric interpretation of nuclei is compositional: /iy, ey, oy, ay, uw, iw, ow, aw/[4] all have something in common, which is that phonologically they are all part of a class of V units known as 'closing diphthongs' and are all described as `height(close)` in their second part and have the head feature[5]

---

[3]YorkTalk is written in Prolog, which makes extensive use of unification. (See eg Shieber 1986)

[4]The phonemic representation is used here only for convenience. It should be clear by now that such phonemic representations are not used anywhere in the system

[5]Our structured representations make extensive use of heads and head features. Heads are given a special status in parametric interpretation, in that heads are always interpreted first.

`long(+)`; what is more, they share part of their phonetic interpretation, which is what makes the interpretation compositional.

Compositionality serves as a strong constraint on interpretation. Since we want to make as many generalisations as possible (and necessary) in our statements of phonetic exponency, we do not want to proliferate statements whenever we can avoid it. As indicated earlier, the interpretation is also arbitrary; any value whatsoever (within the limits of the Klatt synthesiser) could be put in for the f1_exponency in the case above. But the results must sound like good English, and so compositionality and our ears function as strong constraints on the values and the timings we allow. Where generalisations do not result in natural-sounding synthesis, we prefer to have many more exponency statements whose applicability is more confined.

4. A Hypothetical Worked Example

To bring the above sections together, we will provide an imaginary example. We will work through the interpretation of an imaginary syllable (whose identity is irrelevant to our purpose) and show how the parametric interpretation is assigned to the sort of structure drawn in Figs 1 & 2.

The first step in p_interpret(Syllable) is to p_interpret the *head* of the syllable, which is the rime, and its head is the nucleus. So the first thing to be p_interpreted is the nucleus.

Parametric Interpretation of Nuclei

Imagine we wish to interpret a structure with the following featural description:

```
((grv(a), height(x), rnd(a)),
 (grv(b), height(y), rnd(b))).
```

The f2_exponency statement might be:

```
f2_exponency (nucleus ((_, height(x), _), (grv(b),
                height(y),          _)),
  (Start,1500)
  (Start+(x% of Duration),1500)
  (Start+(y% of Duration),1000)
  (End,1000), (Start=400,End=900,Duration=End-Start) ))
```

Below (Fig 3) is a diagram of the resulting formant shape.

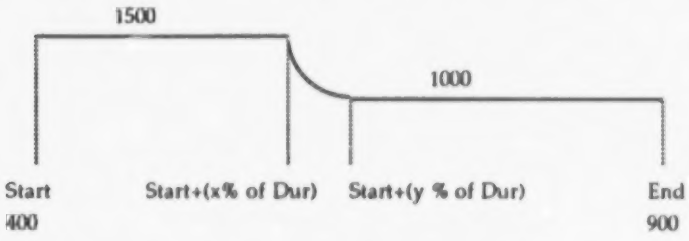

Fig 3: The formant shape resulting from interpreting an 'exponency statement'

An interpolation function is used to join the times and values; where two time points have the same value, a straight line is drawn. Where two adjacent time points (as expressed in the exponency statement) have different values, a smoothed curve interpolation is used to join them. This can be clearly seen in Fig 3. Parametric interpretation goes on in an identical way for all the parameters implicated, so the example of f2 can easily be generalised to other parameters.

Times and values are of equal importance in phonetic description, although traditional phonetics handles time badly. In YorkTalk, the internal temporal structure is crucial to interpretation. Recall that the method we are describing here is compositional and declarative; so not even times can be altered once they are instantiated. The traditional segmental approach to synthesis is to treat values as primary and sit timing on top; in YorkTalk timing and values have to work together simultaneously.

Parametric Interpretation of Codas

Codas are interpreted in much the same way as nuclei. In other words, all the preceding descriptions of interpolation, the structure of the exponency statements and so on apply to codas as well as nuclei. The main point we shall illustrate here is the implementation of *overlaying*.

Recall from Fig 2 that the coda End is that same as the syllable End, and that the temporal domain of the coda falls within that of the

syllable, the rime and the nucleus. The result of this was that the coda exponents would be *overlaid* on the nucleus, ie *coproduced* with the nucleus.

Another principle of the Time field of the exponency statements needs to be described here, which is the use of named variables to pick up values. Let us continue with the syllable whose nucleus we have just interpreted. The timing of the syllable is (Start=400, End=900); the timing of the coda might be (Start=750, End=900). Let us say the coda contains the representation for a dark liquid. We will not bother with features here, but use the name Liquid for convenience. The coda exponency statement for f2 might look this:

```
f2_exponency(coda(Liquid:
  (Start-(a% of Dur), Value1)
  (Start+(a% of Dur), Value2)
  (Start+(b% of Dur), Value3)
  (Start+(c% of Dur), Value4)
  (End, Value4), (Start=750, End=900)),
  Value2 is Locus + (Const1 * (Value1 - Locus))
  Value3 is Locus + (Const2 * (Value1 - Locus))
  Value4 is Locus + (Const3 * (Value1 - Locus)).
```

Note that it is possible (and desirable) not to confine the temporal structure of the coda to within the limits of Start and End, although we do not allow parameters to extend beyond End in nuclei and codas or occur before Start in nuclei and onsets. Note also that there are no 'hard numbers' for the Values of the liquid; they are all relative and all depend on the value which is initially picked up. (We call this the 'pick-up' value; 'pick-up' can refer to a time or a value).

The equations we have presented above are a form of Klatt's (1980) modified locus equation. For reasons of contractual confidentiality we are not allowed to publish the values of Locus and Const. We can say however that it is possible to model the formant values and transitions for English laterals extremely well using this method.

The results of this exponency statement are shown in dotted lines on the diagram below.

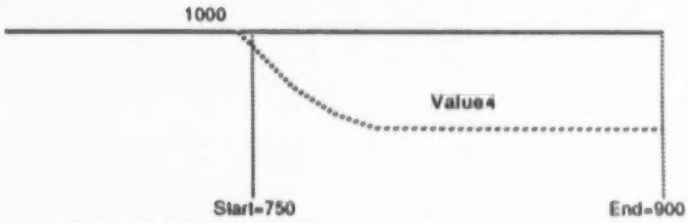

Fig 4: 'Overlaying' coda parameters on to nucleus parameters

In what sense is this 'overlaying'? The values of the exponents of the overlaid coda are all determined in relation to the value of the parameter on to which they have been overlaid (which was calculated when the nucleus was p_interpreted); and the timing does not put the new parameter values *next to* the ones from the nucleus, but on top of them. This is significantly different from the conventional method of synthesis by rule, which adjoins segments in linear sequence and smooths over the join. The YorkTalk method is to build up a database of equations containing <Time, Value> pairs calculated from the exponency statements. Once the whole word has been p_interpreted, the equations are consulted and a synthesis file is generated. In no sense then is anything deleted, because all the exponency information is always present in the database.

The above form of interpretation, where *all* the Values for exponents of a constituent are worked out from Values for another constituent's exponents, is not very common in YorkTalk. More usual is that *some* values are worked out this way, usually the ones nearest the 'pick-up' value, while other values are 'hard numbers'. This is the case for stops, for instance, where the parameter values nearest the 'pick-up' depend on the value picked up, but the values of the parameters at the point of eg the burst are 'hard' numbers. Even this is not as rigid as it sounds; each coda and onset constituent has a `voc` field which determines the resonance of that constituent. The `voc` field is inherited from the nucleus, so that the overlaying is treated as phonological with a phonetic interpretation. (Feature structures which are identical in every respect apart from the `voc` field are as logically distinct from each other as, say, fricatives from nasals; their feature

structures do not necessarily match, and the program only considers something as unifiable or not.)

Parametric Interpretation of Onsets

The parametric interpretation of onsets is carried out in just the same way as that of codas, except of course that the exponents are overlaid from the Start of the syllable rather than the End, and the pick-up Times and Values occur latest in the temporal structure of the exponency statement, while in codas they occur earliest. Strictly speaking, the onset is overlaid on to the *rime*, therefore the onset exponents are overlaid on to the exponents of the rime. This has important consequences for vowel quality, as the schematic diagrams below illustrate. Note that while part of the exponency of a coda is to 'know' how to get *into* the coda, and not out of it, part of the exponency of an onset is to 'know' how to get *out of* the onset, but not into it (at least, not in any sophisticated way).[6]

Schematic diagrams showing the parametric interpretation of a syllable

Below are diagrams showing in stages how parametric interpretation for two parameters might progress. The parameters aren't named because all parameters are instantiated in the same way. The parameters in the diagrams can be taken as anonymous typical representatives.

In Fig 5a only the nucleus has been interpreted. In 5b, the coda exponents are overlaid on to the nucleus exponents. In 5c, the onset exponents have been overlaid on to the rime exponents. The dotted lines in Figs 5a-c represent parameters that are overlaid. 5a is only possible when only the nucleus is present with empty onset and coda; 5b only when nucleus and coda (ie rime), but empty onset; and 5c only with a syllable with an onset and rime. Understanding interpretation as happening in stages is not quite right; theoretically it happens all at once.

---

[6]This is somewhat overstating the case. Of course, a coda that is utterance-final has to join into silence, and this is as much a part of the exponency of a coda as are the sophisticated transitions which lead into the coda. The point is that onsets necessarily look 'rightwards' while codas necessarily look 'leftwards'. In a segmental synthesiser the joins to the right and left would be equally important regardless of phonological structure.

Note that by the end of the interpretation, there is less steady state present than there was when only the nucleus had been interpreted; and also that by overlaying the coda and onset exponents, the vocalic quality of the syllable is not changed because the coda and onset exponents are calculated with reference to the nucleus, either because their Values use the parameter values directly, or because the 'voc' field in their phonological description ensures the correct values for the interpreted structure. On the other hand, the vocalic quality is not identical in the last diagram to that of the first diagram; it is by appropriate overlaying of parameters that we achieve small variations in vowel quality such as between eg 'tap' and 'tack'; or larger differences such as 'fees' and 'feel'.

Fig 5a: Nucleus exponents

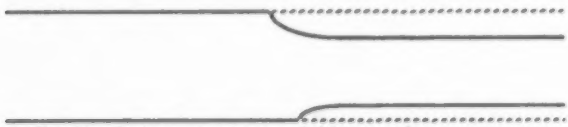

Fig 5b: Coda exponents overlaid on nucleus exponents

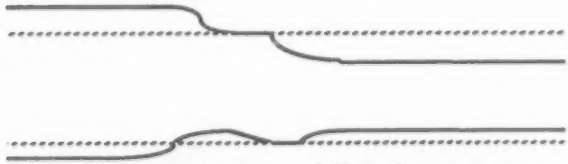

Fig 5c: Onset exponents overlaid on rime exponents

5. Parametric Interpretation of Syllable Overlay

In polysyllabic words, syllables are interpreted as being overlaid on each other. There are two kinds of syllable join; ambisyllabic and non-

ambisyllabic[7]. p_interpreting *any* syllable join consists of just p_interpreting the individual syllables to be overlaid, since the real work of 'overlaying' is handled in t_interpret: the Start of the second syllable is the same as the Start of the Coda of the first syllable plus a degree of Overlap. So the parametric join is in the way that onset exponents are made to pick up from the coda exponents.

There is an essential difference between onset and coda exponency; remember that when one syllable is overlaid on another, the Start of the second syllable is the Start of the coda of the first syllable, plus a degree of overlap. In other words, the transitions out of the coda are not so important as the transitions in, whereas the onset exponents of the syllable being interpreted have to pick up from the coda of the syllable being overlaid and provide a suitable join. In other words, we have to define the transitions *into* the onset as well as the ones out *of* it; whereas for a coda, we just have to state the transitions in.

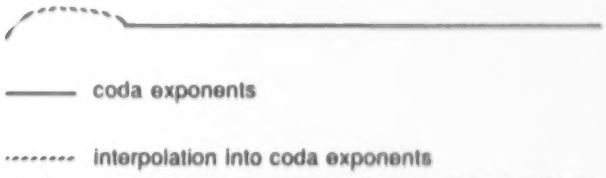

Fig 6: Transitions into the coda are more important than transitions out

It turns out that in order to join two syllables we need do nothing very sophisticated, because there are just two sorts of syllable join; ambisyllabic and non-ambisyllabic. In the ambisyllabic case, the exponents of the coda of the first syllable and the onset of the second are rather similar, and all that is needed is to ensure a smooth transition from coda to onset exponents; the sophisticated 'ways in', such as formant transitions and offset of voicing etc, are taken care of by the coda exponents, while the 'ways out' are taken care of by the onset exponents.

In the non-ambisyllabic case we do not predict any need for a sophisticated join between coda and onset exponents, and in fact the

[7]YorkTalk assumes maximal ambisyllabicity.

'pick-ups' for the onsets just look a certain distance 'back' and interpolate in a straightforward manner from 'pick up' to the first relevant value. So there is only one sort of join for overlaying onset on to coda (ie syllable on to syllable), and it is rather a simple one compared to the more sophisticated exponency statements used for overlaying onsets and codas on to nuclei and rimes respectively.

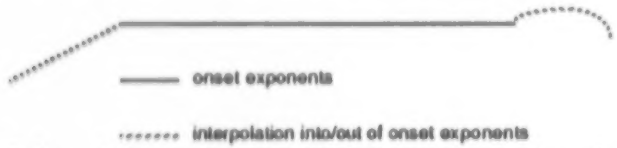

Fig 7: Interpolation out of onsets is like that into codas; but interpolation into onsets need not be sophisticated

Fig 8 shows the parametric interpretation of overlaying syllables; the onset exponents have been overlaid on to the coda exponents. Let us imagine in this instance that the coda and onset are ambisyllabic. Note the straightforward interpolation into the onset (ie simple interpolation between two points), but the more complex interpolation out of the onset exponents, which may require a more refined exponency statement than the interpolation into the onset. Note also the lack of interpolation out of the coda. The onset/coda join is handled only by the onset.

Fig 8: overlaying onset on to coda (ambisyllabic)

In Fig 9 is shown a possible non-ambisyllabic overlay; the onset exponents are the same as in the preceding diagram, but the coda exponents are different. The interpolation in the onset exponents however is the same as in the ambisyllabic case - a straightforward interpolation between two points.

Fig 9: Overlaying onset on to coda (non-ambisyllabic)

The first case (fig 8) might be an interpretation of, say, the structure for 'ri(bb)on', while the second (fig 9) might be an interpretation of the structure for 'hus)(band', ie the first one has ambisyllabic structure, the second has non-ambisyllabic structure.

6. The Quality of Laterals in English

English, in 'classic' phonology, is said to have one lateral phoneme /l/ with two allophones [l] and [ɫ], the latter of which is found syllable-finally (see well-known descriptions of this in eg Gimson 1962 and Jones 1962). Lehiste, however, in an instrumental study (Lehiste 1964) found that the formant values of [l] in American English varied according to two things: the position in the syllable, and the vocalic environment. Syllable-initial [l]-sounds were found to be clearer on the whole than syllable-final ones; in broad acoustic terms, the difference between f2 and f3 was found to be lower on the whole at the end of the syllable. But the other strand of the analysis was that the f3-f2 difference (which can be seen as a correlate of darkness or clearness) also depended on the vowel before or after the acoustic segment identified as 'lateral' by Lehiste.

Different lateral qualities are modelled in YorkTalk in the following way: there is one set of exponency statements for all the onset laterals and another for the coda laterals.[8] The two statements are identical in form; they take the value of the formants of the nucleus on to which they are overlaid and they calculate from that the value of the formants which are the exponents of the lateral. The formulae are the same in each case; the difference is the value of the Locus and Constants which

[8]There is nothing exceptional in this. It should be clear that onset and coda exponents are logically very separate in YorkTalk, and have to be stated separately for each structural position.

are used in the formula to relate the nucleus exponent to the onset or coda exponent.

There is another difference between onset and coda laterals; in the onset, the lateral stands in a particular place in the phonological system. It is the clear member of a two-term system of liquids which commute in onset position. Whereas in the coda position it is the only member (in the variety of British English which we are modelling) of a liquid system, therefore the clearness or darkness is not phonologically relevant.

The quality which Lehiste detected in her study of medial laterals (ie in structures of the form VCV) was neither clear nor dark; it was somewhere in between. We replicate this by overlaying the onset and coda laterals in the right way to produce a period of laterality which starts off comparatively dark (from the coda) and ends up comparatively clear (from the onset), a phenomenon observed by Lehiste. So the lateral in 'silly' is not as dark as in 'sill', but not as clear as in 'lee' - it is somewhere in between because it is composed of a dark coda lateral and a clear onset lateral.

By using a different syllable overlap it is possible to produce a difference in the quality of the laterals in word pairs such as 'tieless' and 'tileless', so that in 'tieless' the laterality is shorter and clearer than in 'tileless'. This is illustrated in the figures below.

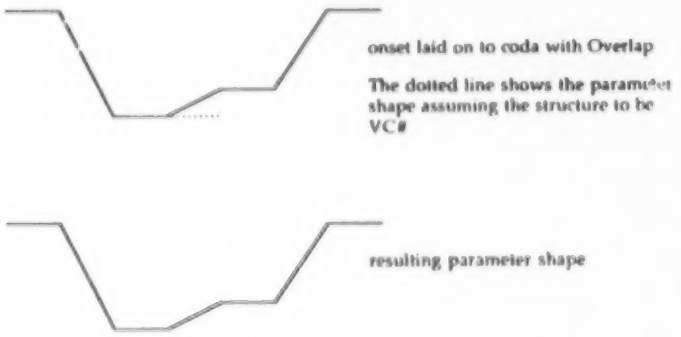
onset laid on to coda with Overlap
The dotted line shows the parameter shape assuming the structure to be VC#
resulting parameter shape

Fig 10a: lateral onset laid on to lateral coda (relatively small overlap)

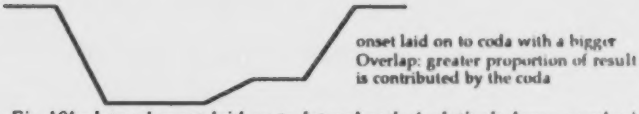

Fig 10b: lateral onset laid on to lateral coda (relatively large overlap)

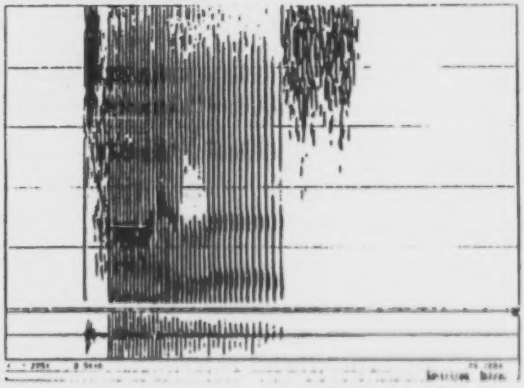

Fig 10c: Spectrogram of synthetic 'tileless' (cf Fig 10a)

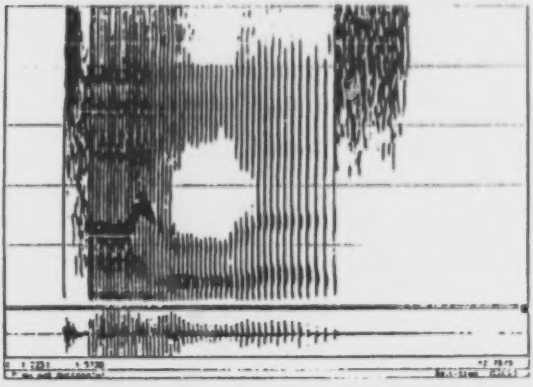

Fig 10d: Spectrogram of synthetic 'tileless' (cf Fig 10b)
Note and compare the value of f2 in the period of maximal laterality for Figs 10c & d. This is achieved solely by use of different degrees of syllable overlap (cf Figs 10a & b).

So we have only two exponency statements for English laterals, and they are determined by the phonological structure of the language; yet we can produce as many laterals as we can produce nuclei and sequences of nuclei.

Vowel Allophony

It can be observed that the final vowels of 'Henry' and 'Henley' do not have the same phonetic qualities. One is clearer and closer than the other, which is retracted and more open. Which is which will depend on the speaker's dialect, and is connected with the status of liquids in the speaker's phonological system (Kelly & Local 1986, 1989). YorkTalk models 'Henry' as dark and 'Henley' as clear. How do we achieve different phonetic qualities but have the same interpretation of the nucleus, which is not distinctive in the second syllable of these words?

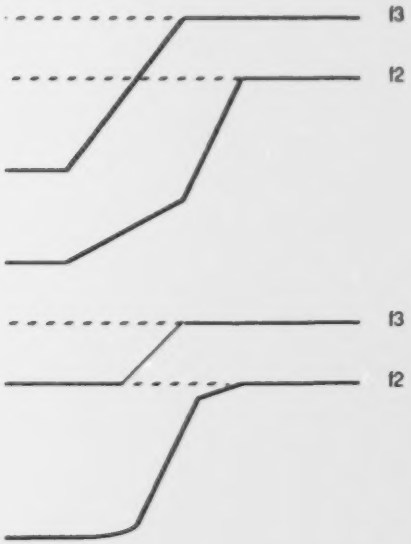

Fig 11a & b: Clear and dark liquids have different temporal structures and are overlaid in different ways, to give different qualities to the rimes on to which they are overlaid

To achieve the formant parameters which sound like the vowels described above, we use overlaying and timing. Overlaying a clear onset liquid on to a rime quite simply has a different effect from overlaying a dark onset liquid on to a rime; the off-glides are different in each case, and produce formant tracks that mimic what happens in natural speech. It is *completely unnecessary* in the YorkTalk system to handle vowel allophony by having separate exponency statements for vowels in differing phonological environments; the correct phonetic results are achieved by making sure that the components of the interpretation are as accurate as possible.

7. Summary

We have described parametric interpretation in the YorkTalk system in some detail. We have shown that parametric interpretation can be done compositionally and declaratively, and that it is possible to generate natural-sounding synthetic speech by rule.

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ENGLISH IN CONTACT WITH OTHER LANGUAGES: ENGLISH LOANS IN GERMAN AFTER 1945

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1. Introduction

German, like many other languages, has absorbed words from different languages during its history. French and Latin have continually contributed to the lexical stock of German but in the twentieth century, particularly since 1945, it has been English, especially American English, which has been the main source of borrowing. Siegel (1989: 334-87) registers an increase in the amount of borrowed words listed in both the Mannheim and Leipzig *Duden Rechtschreibung* volumes from the 14th to the 18th editions only in the case of English. The number of English loans rose from 868 (2.9%) to 1,404 (3.89%). The influence of English has, of course, not restricted itself to German or even the Germanic languages (W. Viereck and Bald 1986). Surveys are provided by Stanforth (1968, 1991), Carstensen (1984), W. Viereck (1984, 1986). It is the purpose of this article to review the phenomenon of borrowing of English loans, outlining the sociolinguistic and linguistic factors that are involved, to examine the changes that English loans have undergone in their adoption by German, to give examples of the main areas where borrowing has taken place and to show the channels through which borrowing is said to have occurred.

1.1 Motives for Borrowing

The most easily understood motive for the borrowing of a word from a foreign language is when the actual object or concept is also imported. This is the case in such English loans as *der Laser*, *der Landrover*, *Lumberjack*, *das Milkshake*, *Marketing*, die *Public Relations*. This is particularly true of certain areas of the vocabulary, e.g. pop and rock music with *LP*, *Band*, *Hit*, *Song*, *Rock*, *Pop*, *Fan*, *Album*, *Single*, *Star* being the ten most frequent English words (Ortner 1982: 264) and fashion, where out of 69 loan words, 40 were English, e.g. *Bermudas*, *Body-Stocking*, *Coat*, *Jumpsuit*, *Lambswool*, *Patchwork*, *Separates*, *Sweatshirt*, *T-Shirt*, *wash and wear* (Ortner 1981: 236-44). Often,

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however, the motive for borrowing is the desire on the part of certain speakers to show that they know a certain language by lacing their own speech with borrowings. Foreign words have a greater prestige than native ones in certain area, e.g. in fashion, when *Accessoires* is used instead of *Zubehör*, *Line* instead of *Linie*, *Sailor* instead of *Matrose* and *navyblau* instead *marineblau* (Ortner 1982: 231-36). When crazes start in the English speaking world and spread to other countries the English designation usually spreads as well, e.g. *Skateboarding*, *Aquaplaning*, *Aerobics*.

1.2 Loan Words and Fremdwörter

The post 1945 English loans fall generally into the pattern of being unassimilated or partially assimilated loans (*Fremdwörter*), whereas older assimilated loans (*Lehnwörter*), e.g. *Mauer*, *Pfeil*, (from Latin *mûrus*, *pîlum*) are only recognizable as loans by historical evidence and etymology. Unassimilated and partially assimilated loans very often show features which are not present in German. These can be: 1. pronunciation, e.g. some English sounds, for instance [dʒ] and initial [s] do not occur in standard German; 2. spelling, many letters and combination of letters do not occur in German: *clever*, *Camping*, *Leasing*, *Toast*; 3. inflection, many English loans have a pl. ending *-s*, *Party*, *Parties*. These criteria are not always a clear guide and are modified in several ways to integrate the loans into German (see section 3.0-3.6). In the case of pronunciation, approximate sounds in German are used to substitute for English sounds not available in German, e.g. [tʃ] for [dʒ], [z] for initial [s] and [ɛ] for [æ]. Spelling becomes altered to conform to German rules, *cl-* is replaced by *kl-*, *Clown* by *Klown*, English *strike* was already altered to *Streik* in 1884. Some English nouns when they are borrowed do not take the ending *-s* but conform to the German inflectional pattern, those in *-er* take no ending in the pl., e.g. *Gangster*. Form is not always a guide to whether a word is a loan or not, for instance *killen*, *Lift* conform in pronunciation, orthography and inflection to German patterns but it is only the knowledge that these words are similar in form and meaning to Engl. *to kill* and *lift* that tells us they were probably borrowed. Often native speakers of German are uncertain as to which words are unassimilated loans when given an arbitrary list of loans and native words. For instance in one

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such test 97% considered *Eventualität* an unassimilated loan, 86% *Impression*, *Mannequin*, 73% *Interview*, 68% *killen*, *Streß* ,52%, *Gangster*, 45% *mixen*, 37% *Pullover*, 30%. *Test*, 22% *Start* (Augst 1977: 66f.).

English loans are also to be expected in the speech of some speakers, e.g. those who are educated, for instance politicians, academics, and in talking about certain topics, for instance politics, economics, rather than by other speakers and in other topics. Since they are more used by educated speakers with a good knowledge of English their proper use tends to be a shibboleth identifying members of different groups. W. Viereck (1980: 272ff.) found that of a list of 42 Anglicisms, or compounds containing English components, the five most easily understood were: *Testfahrzeug*, *Tip*, *Fitnessraum*, *Live-Übertragung*, *Callgirl*, and the five least understood were: *Ghostwriter*, *Disengagement*, *Lobby*, *Impeachment*, *Split-Level-Bauweise*. In a survey of what various loans might mean some speakers of German confused the *set* in *Jetset* with the *set* in *Twinset* and regarded the former as 'combination of clothes'. Some thought that Ghostwriter was a 'writer of ghost stories'. *Streß*, was confused with *Dreß*: by some speakers. and *Dressman* was regarded as someone 'who trains (*dressiert*) dogs' (W. Viereck 1980: 315f.). Carstensen and Hengstenberg (1983) in a study of 50 English words found that 30 were understood correctly by 60 per cent of their informants. The words that were understood correctly by over 90 per cent of informants were: *Surfing*, *Skateboard*, *Tramper*, *Discoroller*, *Lunch* and by over 80 per cent: *Boom*, *Mixed Pickles*, *Jogging*, *Know-How*, *Top Ten*, *Pumps*, *Sideboard*. At the other end of the scale the following were understood correctly by under 30 per cent of the informants: *Deadline*, *Brain Drain*, *Underdog*. The criteria of topicality is important in the understanding of English words. As we shall see, however, some deviations from English practice in the usage of some English loans have become standard in German.

1.3 Attitudes to loans

Reactions to loans in general in German have always varied over the centuries. After the establishing of the united German Empire in 1871 nationalistic feeling ran high and there was a reaction against accepting loans. In 1874 the Postmaster-General Heinrich von Stephan (1831-97)

replaced 760 official postal and transport terms by German equivalents, for instance *Eilbrief* for *Expressbrief*, *einschreiben* for *rekommandieren*, and *Postkarte* for *Korrespondenzkarte*. Then in 1885 Hermann Riegel (1834-1900) formed the *Allgemeiner Deutscher Sprachverein* ('General German Language Society'), one of whose tasks from then on was to stem the tide of loans and suggest German words to substitute for foreign ones. A large number of 'Germanicizing dictionaries' (*Verdeutschungswörterbücher*) were produced. One of the more successful coiners was Otto Sarrazin (1842-1921) who was responsible for introducing *Abteil* for *Coupé*, *Bahnsteig* for *Perron* and *Fahrkarte* for *Billett*. This tradition of purism continued into the twentieth century. During the Nazi period, in fact, there were many cries to reject borrowing but Hitler himself eventually forbade the witchhunt for foreign words. He himself used many loans for specific propaganda purposes. They lent his statements and speeches a pseudo-scientific air very often they clouded the listeners' reason since they did not know exactly what he meant when he talked about *Emanzipation*, *Germanisation*, *Inflation*, *Intelligenz*, *Propaganda*, *Sterilisation*, *Zentralisation* (Von Polenz 1967b). After 1945 more moderate views are to be found among lexicographers and societies such as the *Gesellschaft für deutsche Sprache* expressly forbade any 'witch hunt' of foreign words. The Duden volumes are happy to accept assimilated loans, especially, as technical terms, if they are part of a specialist jargon. They can sometimes be more neutral than native words and provide a source of stylistic variation. Some lay opinions, however, against the use of Anglicisms do still exist and represent a wide spectrum of reasons, ranging from revealing a 'laziness of thinking', 'besmirching of the language', through 'kow-towing to the Americans', 'separating groups in society' to 'endangering national identity' (Stickel 1984: 43-47). In the answers to a questionnaire published in two regional papers about modern German 77.7 per cent of those who replied agreed with the statement: 'Es werden insgesamt zu viele Fremdwörter gebraucht' ('Too many foreign words are used'), with only 18.7 per cent agreeing and 3.6 per cent abstaining. In some quarters the opposition to foreign words dies hard, although speakers do not distinguish between foreign words and technical vocabulary which is in general only known to those are interested in a specific vocabulary area.

2. Types of Borrowing

Before we deal with integration of Anglicisms in German we will outline a typology of borrowing which we will use in our discussion of loans. The basic scheme goes back to Betz (1974), but developed between 1936 and 1949. A good discussion is given in Seebold (1981: 194-217). The English terminology is derived from Haugen (1950) and Weinreich (1953). Most of the examples are taken from Carstensen (1965).

Simple loans may be unassimilated, e.g. *smart*, or else assimilated, e.g. *killen*. We have already shown how it is difficult to draw the line between these two types. In both cases, however, the original form of the loan is easily discernible. Loan formations on the other hand attempt in varying degrees to represent the English words and affixes by German ones. In these cases the English words are mostly compounds, *floodlight*, or derived forms comprising a base plus an affix. If each part of the English word is rendered literally by its German counterpart we may speak of a loan translation (*Lehnübersetzung*), e.g. *Flutlicht* from *floodlight*, *Gehirnwäsche* from *brain washing*, *Geschmacksknospen* from *taste buds*, *brandneu* from *brand new*, *Eierkopf* from *egg-head*, and *Spätentwickler* from *late developer*. If the rendering of the English word is only partially literal, e.g. *Wolkenkratzer*, literally *cloud scraper*, for *sky-scraper*, then we speak of loan rendition (*Lehnübertragung*). Other examples are: *Marschflugkörper* 'cruise missile', *Schlafstadt* 'dormitory town', *Urknalltheory* 'Big Bang theory'. The example of *Untertreibung* for 'understatement' which is often given is according to W. Viereck (1986: 118) to be dated from 1910. If on the other hand nothing of the English word is literally translated but an attempt is made at an interpretation of its meaning by an approximate translation, then we speak of loan creation (*Lehnschöpfung*,), for instance, *Luftkissenfahrzeug* for *hovercraft*, *Nietenhose* for *jeans*, *Klimaanlage* for *air-conditioning*, and *Holzkohlengrill* for *barbecue*. W. Viereck (1986: 118) feels dubious about loan creations and words if they really belong to borrowing at all since all their components come from the native language. Carstensen (1983: 22) rejects this category as well, preferring to say that that, for instance, German *Luftkissenfahrzeug* merely 'renders' Engl. *hovercraft*. Kirkness (1984: 22f.) also rejects the category of loan creation from borrowing.

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Another frequent type of borrowing is semantic borrowing (*Lehnbedeutung*). A German word which already has one or more meanings is given a new meaning on the model of an English meaning of the cognate word. For instance *feuern* and *to fire* both mean 'to shoot (at)' but the extension of meaning in English to 'to dismiss from a job' has now also been taken on by the German word. *Realisieren* which in German was for a long time only used for 'to make possible' is now often used in its English sense of 'to understand clearly, become aware of', *kontrollieren* in the sense of 'to control' is used alongside its other meaning of 'to check', *buchen* in the sense of 'to book (a room etc.)', although originally borrowed in the eighteenth century, has vastly increased in use after 1945, *herumhängen* can be used of people who are 'hanging around', as in English, and not merely of things, *das Paket* is used for a '(political) package', e.g. *Steuerpaket*, *Sozialpaket* on the model of English.

The last category of borrowing is one which, as yet, seems mainly illustrated by examples of English loans in German after 1945. This is the pseudo-loan (*Scheinentlehnung*, *Sekundärentlehnung*) where English morphemes are used to produce words which look English but which do not occur in English. Some of these are the products of the advertising industry. The most famous of these is *Twen*, from Engl. *twenty* meaning 'someone in his or her twenties'. Others are *Dressman* 'male counterpart to mannequin' (male model)', *Showmaster* 'compere', possibly formed by analogy with *Quizmaster*, *Pullunder* 'a sleeveless pullover', *Trench* 'trench-coat' and *Mokick* 'a small (50cc) motor bike with a kickstarter', which is a blend of *a* and *Kickstarter* (Hannah 1988). This is naturally rejected by Kirkness (1984: 23) and others on the grounds that although the elements may be borrowed, and thus 'foreign', the patterning is not but occurs in the native language. Of these four types, loan translation and loan meaning seem the most frequent. Contemporary dictionaries tend not to mark words according to these types. The only exceptions are *Duden Universalwörterbuch* and *Duden: Das Große Wörterbuch* which mark words as being loan translations. Using historical dictionaries can show which of the three types (loan translation, loan rendition, loan meaning) are most frequent. An examination of Paul's *Deutsches Wörterbuch* (although it covers the

whole of the historical development of German) yielded 275 loan translations, 66 loan renditions and 44 loan meanings.

3. Integration of Loans

Although English and German both belong to the German language family, sharing many common words and constructions, their sound systems, orthographies and grammars are sufficiently different for English loans to have to undergo basic changes in order to be integrated into German. In the following sections we will show how English loans are changed as they become integrated into German.

3.1 Orthography

The most obvious way in which English loans stand out in German texts is in how they are written. In a few cases English loans happen to be spelt in a manner conforming to German orthography, *killen*, *Lift*. English vowel sounds usually remain unaltered, *Toast*, *Leasing*, *Soul*. The most obvious sign of orthographic integration is the use of capital letters for nouns, *vom Streß in der City zu shoppen*. The initial clusters *cl-*, *cr-* *in* English correspond to *kl-*, *kr-* in German and English initial *k-* before a back vowel corresponds to *k-* in German. Examples can be found of fluctuation between the two spellings: *Klub*, *Club*; *kracken*, *cracken*; *Katgut*, *Catgut*; *Kode*, *Code*, but most loans retain *c*. In English the letter *c* is also used for [s] before front vowels, *cigarette*, *certificate* and these two words are written with *c* and *z* in German, *Cigarette*, *Zigarette*; *Certifikat*, *Zertifikat*. The voiceless postalveoar fricative [ʃ] is spelt *sh* in English but *sch* in German with the result that a few English loans have alternative forms with *sch* *Schock*, *schocking*, *Sketsch*, but the majority retain *sh*, *Show*, *Shaker*, *Shorts*. In *schrinken*, *Schrapnell*, both older loans, only *sch* occurs. English word final *-ss* is usually written *ß*, *Streß*, *Boß*, *Stewardeß*. English loans have introduced the use of final -y into German, *Boy*, *Baby*, *Party*, *Rowdy*. The English spelling rule of changing the *y* to *i* before adding the pl. ending *-es*, *Party*, *Parties*, is usually adhered to but very often one finds pl. forms such as *Partys*, *Rowdys* where the rule has not been applied.

Not only letters play a role in orthography but also the hyphen and apostrophe. Many English loans which are hyphenated compounds still

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retain the hyphen in German, *Make-up*, or are written as two words *Public Relations*, but most are written as a single orthographic word, *Comeback*, *Babysitter*, *Diskjockey* (cf. Engl. *comeback*, *baby-sitter*, disc-jockey). The genitive apostrophe in English, Tom's hat, is also, under English influence, to be found with the genitive of proper names in German *Faden's Tannen* (street name) and especially in advertisements, *Beck's Bier*. This usage probably goes back to at least the nineteenth century. The apostrophe is strictly only allowed when the name ends in *s*, *ß*, *tz*, *x* or *z*, e.g. *Sokrates' Finger*.

3.2 Pronunciation

If an English word contains a sound which is not to be found in German then usually the phonetically nearest sound to it is used by a German speaker. The skill in reproducing English sounds will of course depend on the amount of linguistic training of the speaker concerned. Fink (1980) investigated the pronunciation of 44 English words and phrases and found a great variety of pronunciations for each word. Students, academics and pupils were, not surprisingly, the groups whose pronunciation and understanding of Anglicisms was the best. Younger speakers were also better than older ones. Here we shall discuss some sound substitutions which can be commonly heard among German speakers. In many cases information in dictionaries confirms these observations. For the English diphthongs [eɪ] and [əu] German speakers substitute either [e:] or [ɛ:], e.g. *Trainer*, *Spray*, and [o:], *Soul*, *Toast*. English [ɜ] as in *girl*, *shirt* does not exist in German and often [ø:] is substituted for it. Similarly the short English [ɷ] does not exist in German and [a] is used instead by German speakers in words like *Curry*, *Cutter*, and in a few cases the spelling *a* may be found, e.g, Bags Banny (Bugs Bunny). The English [a] sound is perceived by German speakers to be closer to [ɛ] than [a] and is consequently pronounced [ɛ]. It is sometimes written ä in brand names, *Das Big-Mäc* (hamburger) or to Germanicize foreign words, e.g. *Cräcker*, *Täcks* 'cream cracker', 'tack'. In other cases words containing English [æ] are pronounced [E] but the vowel is spelt a as in English, e.g. the older loan *Tram* (1875) and also modern *trampen* 'to hitch-hike', *Gag*.

The following substitutions are made among the consonants. English [ɑʒ] does not exist in German and [tʃ] is often used instead,

Job, *Jeans*, *Jet*. The German uvular-r [ʀ] is substituted for the English prevocalic or intervocalic flapped [ɹ], *Trainer*, *Sherry*. Other differences do not result from the absence of the sound in German but from its different distribution. Intervocalic voiceless [s] occurs in German, *reißen*, *wissen*, but in initial position before vowels a voiced [z] is used in standard German (southern colloquial speech does have initial [s] however). In general most German speakers use initial [s] without difficulty in English loans, *Safe*, *Set*, *Single*, *Software*, *Surfing*. However, some words do occur with [z] which is an indication of their integration into German. The prefix *Super-/ super-* which is added to adjectives or nouns, *supermodern*, *Supershow* is also pronounced with [z] , as is the less common prefix *sub-/ sub-*. The English initial consonant cluster *tw-* does not occur in German but with the borrowing of a number of words, *Tweed*, *Twill*, *Twinset*, *twisten* it has been re-introduced into German (Middle High German *tw-* became *zw-* or *qu-* in modern German). Due to a sound change of [s] ---> [ʃ] before initial consonants modern German has no clusters of s + consonant in native words. English on the other hand has only one cluster of [ʃ] + consonant, *shrimp*. Consequently any words borrowed from English with initial [s] + consonant are either felt to be unassimilated loans and pronounced [sp-, st-] etc , e.g. *Spike*, *Star*, or else they become integrated and are pronounced [ʃp-, ʃt-] etc., e.g. *Sport*, *Stop(p)*. The fluctuation of pronunciation can be seen easily be consulting any monolingual dictionary or pronouncing dictionary. A general rule of German phonology is that all consonants in word or morpheme final position are voiceless, which is not the case in English where both voiced and voiceless consonants occur, *cab*. *cap*. This means that final voiced consonants in English loans become devoiced in German speech, *Job* [tʃɔp], *live* [laɪf], cf. *Live-Sendung* [laɪfzɛnduŋ] 'live-broadcast'.

3.3 Inflection

English has lost most of the inflectional endings and grammatical categories it originally had, which German has retained, e.g. inflection of adjectives, several different pl. endings, personal endings in verbs and gender in nouns. English loans thus have to be adapted to fit in with this system. Nouns form by far the largest word class of Anglicisms,

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followed a long way behind by verbs and adjective. In Oeldorf's list (1990: 49-52) there were 120 nouns, four verbs and four adjectives. A sample from *Der Spiegel* of 10.12.90 brought a similar result: 101 nouns, six adjectives and five verbs. The majority of English loans being nouns presents a great problem of integration. English has no grammatical gender whereas German has three genders; English has mainly the one pl. ending *-s* whereas German has five: *-e*, *-e* accompanied by mutation of the stem vowel, *-er* accompanied by mutation of the stem vowel, *-en* and *-s*.

English loans must, therefore, be assigned to one of the three grammatical genders in German. In many cases this is done by assigning it to the grammatical gender of its nearest German equivalent, e.g. *der Cowboy* (*der Junge*). *die Lady* (*die Dame*), *das Girl* (*das Mädchen*), *der Lift* (*der Aufzug*), *die Show* (*die Schau*), with natural gender also being a major influence where applicable. An exception is *Vamp* which, although it refers to a female person is grammatically masc. However, an additional important factor is the influence of the phonological shape of the word on the gender to which it is assigned. Nouns ending in *-ion* and *-eß* are feminine, *die Lotion. die Hosteß*, (but *das Business*), those ending in *-ing*, *-ent* and the suffix *-in* are neuter, *das Doping*, *das Hearing*, *das Treatment*,, *das Management*, *das* Sit-in, and those in *-er* are masculine, *der Layouter*, *der Computer*. With monosyllabic inanimate nouns there is a great deal of arbitrary gender assignment since natural gender and phonological shape do not help us. The following examples from the *Fremdwörterbücher* of Wahrig, Knauer and the *Duden Großes Wörterbuch* illustrate this: *das Layout*, *das Limit*, *der Liquor*. *die Lobby*, *der Look*, *der Lunch*, *der Lag*, *der Lob* (in tennis), *die Lounge*, *das Lullaby*. Since the criteria for assigning gender are not clear, nouns may fluctuate in grammatical gender: *der/das Lasso*, *das/der Lockout*, *der/das Looping*. Carstensen (1980) shows how unreliable dictionary information on gender assignment may. Also there is no information in dictionaries about the frequency of the use of the different genders. Carstensen tested gender assignment with informants and found that the certainty of the gender of a noun depended on the degree of understanding of its meaning. This is an area where research can usefully be done.

Most English nouns form their pl. by adding *-s*, *Layouts*, *Looks*, *Lobs*, *Loopings*, but those ending in *-er* take no ending, as in German, *die Teenager*, *die Layouter*, *die Bestseller*. Some nouns such as *Sketsch*, *Lift*, have alternative pl. forms in *-e*, and in the case of *Toast* the two forms have, for some speakers at least, become separated in meaning, *Toaste* 'the slices of toasted bread' and *Toasts* 'the speeches and calls to drink at functions '. The pl. of *Boß* is *Bosse*. The feminine nouns in *-eß* add *-en* in the pl , *Stewardessen*, *Hostessen*. One of the effect of the English loans has been to increase the incidence of *-s* pl. nouns in German.

English verbs are more easily integrated and simply add *-en*, *kill* --> *killen*, *test* --> *testen*, *dope* --> *dopen* and are always conjugated like. weak (regular) verbs, *killte*, *gekillt*. The verb *babysitten*, however, is only used in the infinitive. The verb *recyclen* retains its English spelling when used in the past participle, *recycelt* or in other forms *recyclet*. Participle forms are used adjectivally, e.g. *pushende*, *gecharterten*. Most adjectives such as *smart*, *clever*, *cool*, *fair*, *postmodern* also present no problem since they simply take the appropriate endings, e.g. *ein faires Angebot* 'a fair offer'. Some adjectives do not inflect since they mostly occur in predicative position, e.g. *down*, *groggy*, *sexy*, *ladylike*, *live*.

3.4 Word Formation

Suffixes and prefixes have also been borrowed from English and new ones created by a reanalysis of English loans. A very widespread English prefix is *super-/Super-* which combines with adjectives or nouns, *superklug*, *superwasserdicht*, *Superbreitwand*, *Superspion*. Examples and a description of the meaning and distribution of this and the following affixes can be found in *Duden 10. Das Bedeutungswörterbuch* which lists 40 adjective and 30 noun forms. *Schulz/Basler* (1977-78) shows a steady increase of *super-/Super-* forms after 1945. There have been attempts to use a loan translation, über-/*Über-*, e.g. *Überspieler Pele*, but this has not caught on. The prefix *Ex-*, which is only added to nouns, is also very frequent and is added to both German and English nouns, *Ex-Minister*, *Ex-Gatte*, *Ex-Zuchthäusler* and now *Ex-DDR*. 32 such noun forms are listed in *Duden 10*. The semi-suffixes -bewußt and *-weit* are considered loan translations

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of English '-conscious, -wide', *selbstbewußt* 'self-conscious', *weltweit*, 'world wide'. The semi-suffix *-bewußt* has also been productive in forming new words, *marketingbewußt*, *verteidigungsbewußt Duden 10* lists 34 forms), whereas -weit has been restricted to a few forms such as *bundesweit*, *DDR-weit*, *weltweit* which themselves are very frequently used. From the noun *das Musical* a morpheme *-ical* has been abstracted, although only productive for a limited length of time, and is used for new formations such as *Grusical* 'horror show', *Logical* 'puzzle (based on the rules of logic)', although some are often jocular nonce-forms like *Absurdical* 'absurd play', *Frostical* 'show on ice' (Carstensen 1985). The English agentive suffix *-er*, although present in German, has become used more frequently under English influence both for people, *Geldmacher*, *Discounter*, *Abrüster*, *Platzhalter* and also instruments, *Senkrechtstarter*, *Viertürer* (Carstensen 1965: 55-58).

The extent to which English loans have penetrated the vocabulary of German can be gauged by the large number of hybrid words that have been formed, i.e. words containing both an English and a German morpheme, e.g. *Jetflug*, *Bluttest*. In most cases these can be regarded as semi-loan translations where only one, instead of both members of a compound is translated. Some examples of these are: *Babyalter*, *Babyausstattung*, *Babyjahr*, *Babyrassel*, *Babywäsche*, *Diskountpreis*, *Nonstopflug*, *Supermarkt*, *Haarspray*, *Flugticket*. These forms are regarded as sufficiently German not to be found in *Fremdwörter* dictionaries but only in German dictionaries. Further evidence for the integration of English words into the German system of word formation is given by the fact that even a derivational German suffix such as *-in* for forming feminine nouns can be added to English words: *Layouterin*, *Bodybuilderin*, *Cutterin*. The English verbal particle *on* is rendered *an*, e.g. *anturnen* 'to be turned on (usually to drugs)'.

3.5 Changes in Meaning

While many English loans retain their English meaning after being borrowed into German, e.g. *Baby*, *Computer*, some have their meaning altered to a greater or lesser degree. The meaning of some words has been extended in German. The following examples are mainly drawn from Buck (1974) and Carstensen (1965). For instance *Bestseller* can be applied to anything that sells well and not only to books. The word

Boy has been extended from referring to a person, e.g. *Liftboy*, *Hotelboy*, to apply to things that can help the housewife, *Blumenboy*, *Schuhboy* (containers for flowers or shoes). On the other hand the meaning of some words has been narrowed. *Ticket*, for instance, applies mostly to air-tickets, although it can be used for entrance tickets. A narrowing in meaning normally takes place where there are other native words available in the same semantic area. The importation of English words helps to provide separate lexical items for specialized meanings, for instance *Song* 'a satirical song', *Hit* ' a successful piece of music', *Schlager* 'something popular at the moment, a song, film or play'. Coers (1979) investigated this word field and found a tendency for *Song* to be used not only for songs dealing with themes of politics and social critique but also for popular or sentimental songs. *Job* in German has come to mean 'temporary, short term employment' and stands in opposition to *Beruf* and *Stelle*. The connotations of English loans in German may be different from in English. The adjective *clever* usually has a pejorative sense of being 'cunning'. Sometimes the change in meaning does not seem to fit into any category, e.g. *der Flirt* in German is the action of 'flirting' and does not refer to a person. The term *in sein* means not simply to be 'fashionable', e.g. *Auslandsreisen sind jetzt in* 'Foreign trips are now "in"',but also 'to know about what is fashionable and "in"', e.g. *Ihr seid in, wenn*....'You are "in", if...'

3.6 Syntax

How far English has influenced German syntax is a difficult question. Carstensen (1965: 69-87) discusses thirteen areas of possible influence but is sceptical in many cases because there is a similar tendency in the internal development of German. Among the more well known cases are prepositional use such as *in 1991* for the usual *1991* or *im Jahre 1991* or the use of *für eine Woche* 'for a week' instead of *eine Woche lang*. There is certainly no question of English influencing the basic structure and patterns of German syntax.

4. Entrance and distribution of English loans

English loans were able to spread quickly in German because of the influence of the mass media, particularly through magazines like *Der Spiegel* which has been shown to have a special role Carstensen (1965: 22-25; 1971). However, although English loans are widely used in the

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mass media it is difficult to ascertain exactly how widespread their use is among the general population.

Advertising, in the press, on television and on hoardings is another channel through which English loans have slipped into German. The motivation behind advertising is often to appeal to people's snobbish tendencies either so that they will buy a certain product or that they will apply for certain jobs. It is significant that the pseudo-loans *Dressman*, *Twen*, are inventions of the advertising industry. Most cosmetic terms are English: *Vanishing Cream. Deep Cleanser, Fluid Make-up.* Aviation is particularly strongly influenced by English. The international language of aviation is English and many of the jobs offered have English designations: *Ticketagent, Groundhosteß.* The younger generation are influenced by the predominant use of English as the language of pop and rock music: *Beatband, Rockmusik, Popmusik* (now accepted in German), *die LP, die Single, die CD, Slide-Gitarre, Instrumental-Vokal-Arrangements.* Since English is the first foreign language in schools young people are obviously very open to the importation of English words into their speech.

Many English loans belong to specialist languages and have found their way from there into the mainstream of the vocabulary: *Splitting* 'separate assessment of half of the joint income of a husband and wife for taxation purposes', *Countdown, Fallout, Software, Hardware.* The loans have permeated many fields of vocabulary in German and we will give a list with a few illustrations (some of these words were borrowed before 1945):

Political and public life: Appeasement, Disengagement, Hearing, Image;

Business and commerce, Boom, Clearing, Designer, Dumping, Leasing, Marketing, Safe, Trust;

Technology and science, Computer, Fading, Laser, Mikroprozessor Test;

Sport, Doping, fair, Foul, kicken Trainer, Fan, Champion, Team, Looping;

Fashion: Deodorant, Jumper, Look, Lotion, Make-up, Nylon Pullover, Slip, Spray, Tweed;

Food and drink, Chips, Long-, Shortdrink, Cocktail, Grapefruit, mixen, Sherry, Toast, Soft-Eis;

Entertainment, Bar, Comics, Festival. Gag, Happening, Musical, Party, Quiz, Show, Western.

5. Borrowing in other German-speaking countries

Not only West Germany but all the German speaking countries have been affected by English loans, even former East Germany, although not to the same extent. Pop music, sport and entertainment are the areas through which many English loans like *Feature*, *Sound*, *Evergreen*, *Poster*, *Single* penetrated into former East Germany Lehnert (1986) points out that English influence is not to be underestimated. Peculiar to former East German were some borrowings that came via Russian, e.g. *Dispatcher*, *Kombine*, *Meeting*, *Pressebriefing* and *Plattform* (for political views). Siegel (1989: 345 and 357) shows how the 18th Mannheim Duden has 603 English words (3.89%) and the 17th Leipzig Duden has 377 English words, which do, however, make up 3.74% of all the words. The absolute figures may differ but the percentages show that the influence of English on both West and former East Germany was considerable. Lehnert (1986: 147) points to some specifically East German coinings such as *Intershop*, *Interhotel*, *Plaste*. More understandably Austria and Switzerland have also been heavily affected by English borrowings (K. Viereck 1986; Dalcher 1986). In fact the language of sport in these two countries retains more English sporting term such as *Penalty*, *Corner*, which in West Germany have become *Elfmeter* and *Eckball*. In Austria K. Viereck found that the number of Anglicisms had increased greatly, both in a local Graz paper and *Die Presse* in a ten year period (1986: 163-68), particularly 'partial substitutions', i.e. loan translations, hybrid compounds. In the local Graz paper sport was the area most affected whereas in *Die Presse* it was advertisements and announcements which contained most Anglicisms. Dalcher (1986) found that in Switzerland the greater degree of education influenced the use and understanding of Anglicisms. The older loans tended to be those that were used more. The basic mechanisms of borrowing, types of integration of Anglicisms into German, the areas of the vocabulary which are affected tend to be similar in all German-speaking countries. A temporary difference was that the quantity of Anglicisms was perhaps not so great in absolute terms in former East Germany.

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FROM REANALYSIS TO CONVERGENCE: SWAHILI -AMBA*

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1. Introduction

This paper is concerned with the historical development of one of the morphological patterns of Swahili relative clause structure and the later convergence of Swahili and English surface structure in relative clause sentences in a particular written genre. The discussion is broadly socio-historical in approach and deliberately refrains from characterising the morphosyntax within a particular syntactic model or set of hypothesized grammatical principles, i.e. hypotheses about language universals; good reasons for not relying parasitically on a particular type of syntactic argument (inevitably provisional and incomplete) in investigating linguistic change are given by Aitchison (1987: 13-16, 28-30). The following discussion is a sequel to one aspect of Russell (1986) in which the '*amba*-relative' was used as an example of the difficulties faced by nineteenth century codifiers of Swahili in the matter of choice of structures for inclusion in grammatical descriptions; I drew attention, in fn 9, to the increased syntactic flexibility afforded by the use of this pattern.

2. Modern (Standard) Swahili Relative Clause Structure

There are three morphological patterns for forming relative clause structure in Swahili:

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(1) ndizi zi - letwa - zo (Type 1)
bananas Pro - be brought - REL
the bananas which are (usually) brought

(2) ndizi zi - li - zo - letwa (Type 2)
bananas Pro - Past - REL - be brought
the bananas which were brought

(3) ndizi amba - zo zi - li - letwa (Type 3)
bananas - REL Pro - Past - be brought
the bananas which were brought

The order in which these patterns are listed conforms to the generally accepted view, among Bantuists, of their probable chronological appearance in Swahili; for a resumé of the arguments in support of this, see Schadeberg (1989: 33-35). It is important for what follows that note be taken of the more analytic nature of Type 3, which attaches the relative particle to *amba-*, instead of incorporating it into the verbal group either verb finally as in Type 1 (Post V) or following the tense-marker as in Type 2 (Post TM). The form *-zo-* is glossed as REL in the examples above because of its function as a relative pronoun in these clauses. The same form (and the parallel appropriate forms for the other noun classes) occurs in other environments but always with a substitutive anaphoric function. The form *-zo-* is bimorphemic, being derived from the pronomical concord *-zi-* (for Class 10 nouns) and the referential particle *-o*.[1]

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1 The form of this anaphoric particle varies with the class of the antecedent noun, e.g.
Class 2 pronominal concord *wa + o > o*
Class 5 pronominal concord *li + o > lo*
Class 7 pronominal concord *ki + o > cho* etc.

There are a number of linguistic constraints on the use of these relative clause structures. Type 2 is restricted to clauses tense-marked with *-li-* (Past), *-na-* (Present), *-taka-* (Future), and *-si-* (Negative), although in the early nineteenth century it could also occur with *-me-* (Perfect) - for example see the poem *Ayubu* in Allen (1971: 370-4). Type 3 is optional with these three tense-markers and obligatory with all other forms which can occupy the Tense 'slot' in the verbal group e.g. *-me-* (Perfect), *-ja-* (Neg. Perfect), *hu-* (Habitual), *-nge-/-ngali-* (Conditionals) etc., and with copular forms, e.g. *ni, ndi-* etc. Type 1 signals no time implication, and can be used for generic statements.

One function of *amba*-REL which contributes to the potential flexibility of written Swahili is to facilitate the relativization of NP's at the lower end of the 'accessibility hierarchy' (Keenan & Comrie 1977). For example, NP's denoting Instrument or Possessor are typically less accessible to relativization than are Subjects and Objects. Indeed speakers - and writers too - can avoid relativizing on these NP's (in languages which have the syntactic means to do so) by packaging a proposition in some other syntactic, or even lexical, way. It is not claimed that the following examples illustrate commonly-used sentence types; they are the result of elicitation from informants who have been asked to push the resources of the language to their limits, but they certainly occur (if infrequently) in written Swahili. In example (4) the instrument noun is marked by *kwa*.[2]

Only in the restricted case of the locative predicators *-ko, -po, -mo*, prefixed by the pronominal concord does *-o* have a cataphoric function, e.g. *kiti kimo chumbani* - 'the chair is in the room.

2 A (stylistically-motivated) alternative to *kwa* is to mark Instrument by means of the 'Prepositional' or 'Oblique' suffix on the verb, so *-kata -katia*. In this case Type 1 and Type 2 relative clauses are possible, e.g. *kisu nilichoikatia nyama*.

(4) Baba a - li - i - kata nyama kwa panga
Father Pro - Past - Obj - cut meat with machete
Father cut the meat with a machete

Panga is not relativizable via Type 1 or Type 2 relative clause structure, but it is possible using *amba*-REL even though some informants regard the resulting clause as of only marginal acceptability:

(5) panga amba - lo kwa - lo baba a - li - i - kata nyama
machete -REL with-Pro father he - Past - Obj - cut meat
(it)
the machete with which father cut the meat

Similarly, Possessor NP's:

(6) Juma a - li - m - chinja kuku ya wanawake
he - Past -Obj - kill chicken of women
Juma killed the women's chicken

Relativization is only achievable via *amba*-REL:

(7) wanawake amba - o Juma a - li - m - chinja kuku yao
women -REL he - Past -Obj - kill chicken their
the women whose chicken Juma killed

Notice that, in addition, the relativization requires genitive *ya* to be replaced by the possessive adjective *yao* ('the women who Juma killed their chicken').

Apart from the above linguistic environments which require *amba*-REL for the construction of relatives in modern standard Swahili, its use can be motivated, even in its optional environments, by a variety of discourse-based considerations. For example, *amba*-REL is the preferred relative structure for negating Past, Present and Future clauses if the

discourse requires tense to be given emphasis or if the context does not clearly indicate time reference. The negative form of Type 1, and of Type 2 for Past, Present and Future is:

(8) ndizi zi - si - zo - letwa
bananas Pro- Neg - REL - be brought

This structure contains no tense-marker, and in order to retain tense marking in the verbal group the use of *amba*-REL is necessary:

(9) ndizi amba - zo ha - zi - ku - letwa
bananas - REL Neg - Pro - Past - be brought
the bananas which were not brought

Here tense is unequivocally marked by *-ku-*, the negative form of the past tense marker.

Another example of a discourse motivation for *amba*-REL is the disambiguation of written clauses in which the antecedent noun is the Object of the relative clause verb and where both Subject and Object are members of the same noun class, i.e. the form of the relative particle is the same for both Subject and Object. When it is the object that is relativised, a 'Subject postposing' rule operates (Givon 1972). In example (10), if *mwivi* is the Object of the verb *-ona*, *mtoto* has to be in post-verb position; thus the surface structure is the same as for a clause with *mwivi* as Subject and *mtoto* as Object.

(10) mwivi a - li ye - mw - ona mtoto
thief s/he - Past - REL - Obj - see child
the thief who saw the child / the thief whom the child saw

The effect of postposing the Subject is to disallow the intervention of an NP between the relative pronoun and its antecedent. Example (11) shows how *amba*-REL allows the relative pronoun, attached to its

'carrier' *amba-*, to immediately follow - and clearly mark - its antecedent thus making Subject postposing unnecessary:

(11) mwivi amba-ye mtoto a -li- mw - ona
thief -REL child s/he - Past - Obj - see
the thief whom the child saw

3. The Evolution of Amba-REL

The archaic verb *-amba* ('say') is only evident in standard Swahili in the extended transitive form *-ambia* (tell). At some time in its history *-amba* became renalysed as a complementizer after verbs of saying and perception, and also developed into a carrier for bound pronouns with a relative clause marking function. It is the infinitive form of *-amba* which became reanalysed as a complementizer. The infinitive marker is *ku-*; *ku-amba* > *kwamba*. Example (12) shows its function:

(12) Wa - li - ona kwamba a - me - fariki
They - Past - realise that s/he - Perf - die
They realised that she had died

In spoken Swahili *kwamba* is very often omitted.

This is not by any means a rare type of syntactic reanalysis, as Lord (1976) points out. She cites a number of African and other languages, including creoles, which have a complementizer based on a reanalysed verb 'say'. Once *-amba* took on complementizer-like functions, it became defective as a verb, leaving only its 'prepositional' form *-ambia* as a new base stem (and a few greeting-formulas which contain it as a fossilized form).

Historically and synchronically more than one *amba*-REL structure has been attested. Examination of descriptions of varieties of Swahili from Krapf (1850) onwards (e.g. Weston 1903, Sacleux 1909, Lambert 1957 & 1958) indicates that at least two of the following four

structures have been found to be in variation in a given community at any one time in coastal/island Swahili.[3]

(13)	(a) Pro-amba-REL kwamba	e.g. zambazo kwamba
	(b) Pro-amba-REL	e.g. zambazo
	(c) amba-REL kwamba	e.g. ambazo kwamba
	(d) amba-REL	e.g. ambazo

The verbal nature of *amba-* is most clearly evident in structures (a) and (b), which are of the same morphological pattern as relative clause structure Type 1 shown in §2. Structures (a) - (d) are ordered according to the apparent direction of linguistic change, as far as this can be judged from earlier and more recent investigations. This trend towards morphological simplification, as *-amba* lost its 'verbiness', has culminated in (d) as the accepted form in the standard language, with (c) heard infrequently in some communities in the speech of those least influenced by the standard form.

One factor in the reanalysis of the verb *-amba* must have been the existence/adoption/extension of the verb *-sema* 'say', 'speak'. In the long poem (Utendi) *Ayubu* (see Allen 1971: 370-427), written well before 1835,[4] *-sema* occurs in variation with *-amba*, and there are occurrences of *amba*-REL patterns (c) and (d). That patterns (c) and (d) were well-established in northern (Lamu and Pate) Swahili by the beginning of the nineteenth century is evidenced by the occurrence in the poem *Inkishafi*, probably composed between 1810 and 1820, of a place

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3 In tape-recordings of casual speech from thirty-six Mombasa informants, ranging in age from 11 to 70+, made during 1973, there were only two examples of a complementizer following *amba*-REL, i.e. *amba*-REL *kwamba* and *amba*-REL *kuwa*. Both examples occurred in the speech of people over 50 years of age. (See Russell 1981: 172-5).

4 Allen (1971: 370) points out that the earliest known manuscript of *Ayubu*, dated as 1835, was almost certainly not the original and that the poem is likely to have been composed much earlier than that date.

adverbial between *amba*-REL and the verb of the relative clause (Harries 1962: 90):

(14) amba-yo moyo - ni ni - kusudie
-REL heart - Loc I - intend (subjunct)
which I intend in my heart

This is the structure that is shown in Fig. 1 below as:
amba-REL [Place Adv.] V

As for *kwamba* in its complementizer function, this was well-established by the time Muyaka of Mombasa began composition around 1810 (see the collection of his poems edited by Abdulaziz 1979), although there is at least one example of it in his work co-occurring with *kuwa* ('to be'), the other complementizer with which it is in variation in modern Swahili - see the poem *Kitambi Changu* on p. 174 of Abdulaziz. One of the problems of attempting to trace the development of particular Swahili structures is that the main body of written data from before the late nineteenth century, apart from Europeans' grammatical descriptions and vocabulary lists, is eighteenth and nineteenth century poetry transliterated from the Arabic script. The rigid syllabic measure and rhyming conventions to which these poems had to conform very often affected the morphological structure, e.g. omission of pronominal concord, and insertion of consonants (Harries 1962: 21-22). Another complicating factor is that linguistic forms associated with the Northern end of the Swahili coast became accepted as part of the literary medium for poets further South. As Harries points out, the grammar of contemporary spoken Swahili cannot safely be deduced for a particular area from the poetry composed - or copied for further circulation - in that area. However, it seems reasonable to argue that if a particular functional morphosyntactic element such as *amba*-REL occurs, even if REL varied in form with respect to antecedent nouns of the same class, at least some people in the milieu in which

the poem was heard or read would have been familiar with it - whether they regarded it as archaic, part of normal usage or innovatory.

One reason why the history of *amba*-REL is of interest is that it was a latecomer to the codification process which culminated in Steere's (1870) grammar of Swahili being accepted, in a later edition, as the basis of the standard language in 1925 (see Russell 1986). In his description, Steere mentioned the existence of *amba*-REL but asserted that it was not in use in Zanzibar at that time; this statement stayed in subsequent editions of the grammar until 1943. The 1903 description of the language by Weston, written for his students (of various provenances including the mainland) at the Zanzibar theological college, referred to *amba*-REL as being a feature of casual speech in Zanzibar and only used for relativizing nouns denoting humans. These references suggest that, at the turn of the century, *amba*-REL was a relatively recent innovation in Zanzibar Town speech. Weston, like Velten (1898), refers to the form as archaic, and demonstrates its use by presenting a paradigm of structure (b) in Giriama, one of the Mijikenda tongues, spoken by communities along the savannah hinterland behind the coast of Kenya and northern Tanzania. Krapf (1850) had also noted *amba*-REL, with structures (a) and (c), for 'Nyika', as well as for Swahili. His 'Nyika' was one of the Mijikenda varieties, either of Rabai, where he initially worked, or from his Digo informant. Both Swahili and Mijikenda are members of a North East Bantu linguistic grouping. It is worth noting, at this point, the close and long-standing contact between the Mijikenda people and the Swahili-speaking people of the coastal towns.

The Mijikenda have for centuries been allies of the Swahili 'Twelve Tribes' of Mombasa, assisting them to expel the Portuguese from their island territory in 1728, and in wars against Pate and Oman in the early years of the nineteenth century (Abdulaziz 1979). In addition to contact through mutual support and the provision of material aid in time of war, there was also contact through trade. It was through Mijikenda territory and by the agency of their middlemen that trade, e.g. in ivory,

between Mombasa merchants and the interior was carried on. Also the Mijikenda provided a nearby market for goods imported through the port of Mombasa, from the Arabian peninsula and elsewhere. Large numbers of Mijikenda were to be seen in Mombasa during the two seasons of the year when trading with the outside world was possible. Parkin (1985: 247) notes that key cosmological ideas are held in common by Mijikenda and Swahili communities and that their apparently dissimilar marriage systems are interpretable as variations on a basic pattern. He also points out the traditional infiltration by the Mijikenda of Swahili society by means of intermarriage and/or conversion to Islam.

Close cultural and linguistic contact of the above kind would help to maintain the use of shared functional morphosyntactic elements, such as *amba*-REL, and goes some way towards explaining its presence as far South as Mombasa in the mid-nineteenth century. Its innovation in cosmopolitan Zanzibar Town towards the end of the century, in casual speech, can be attributed not only to visitors from Mombasa and further North, but also to well-travelled Zanzibaris such as L'Ajjemy (1907). Another possible factor might have been Mijikenda influence; Jay Kitsao (p.c.) has pointed out, from oral evidence, the presence of a Giriama community in Zanzibar Town at the end of the nineteenth century.

4. The Use of Amba-Rel

In Fig. 1 (over) the number and nature of *amba*-REL examples is shown for some representative texts for different periods during the last two centuries. The texts are illustrative of the development in the use made of *amba*-REL in written Swahili. Note that in Fig. 1 the provenance of text sources shows two areas where this information is considered relevant, e.g. Tippu Tip is shown as 'South & Zanzibar' because, although much of his life was spent travelling extensively inland in what is now Tanzania, he also lived in Zanzibar from time to time.

Under 'Structural Characteristics' the types of *amba*-REL structure are shown, together with the number of occurrences in the text;

occurrences of structures with inserted elements between the relative pronoun and the verb are also noted, e.g. '-REL [Place Adv.] V' means that an adverbial of place occurs between *amba*-REL and the verb. Also noted in this column are the types of phrase structure that occur, e.g. SO means that the relativized noun is the Subject of the matrix sentence and the relative pronoun functions as the Object of the verb of the embedded relative clause; OS refers to the relativized noun being the Object in the matrix sentence, with the relative pronoun functioning as the Subject of the relative clause, and so on. Romaine (1982: 99-104) summarizes an argument, based on various sources, that there is a hierarchy of perceptual/developmental complexity such that OS relatives are more easily acquired and decoded than SS types, along an OS > SS > OO > SO hierarchy. Evidence from the study of pidgin speakers has apparently been used to suggest that it is somehow 'easier' to relativize Objects of sentences rather than Subjects because it only entails paratactic conjoining of clauses rather than embedding one in the other. This suggestion calls into question the relative ordering of SS and OO on the posited implicational hierarchy. The case for such a hierarchy is not sufficiently strong to permit claims based on it to be made about *amba*-REL in Swahili texts. A more useful approach to the question of the constituent structure in which *amba*-REL occurs, particularly when dealing with written data, is to take account of Romaine's (1982: 104) suggestion that it is the requirements of discourse which are likely to motivate the choice of structure. She points out that nouns encoding new information are highly likely to be in Object position in the sentence. The occurrence of relativization of nouns denoting Time, Possessor and Place is also shown.

It should be noted that in each of the three corpora of poetry *-amba* occurs as a verb, as well as in its re-analysed guise of relative pronoun carrier; it is not possible to say when its verbal function finally became obsolete in all Swahili-speaking communities. It does not occur as a verb in any of the selected prose texts.

Fig. 1 Amba-REL in Texts

Text	Provenance & Date	Structural Characteristics
Pre-1840 poetry		
(i) Inkishafi (approx 1300 words) *-amba* occurs as verb	North 1810-20	amba-REL kwamba (l) SO amba-REL (l) OO -REL [Place Adv.] V
(ii) Ayubu (approx 5000 words) *-amba* occurs as verb	North 1835 or earlier	amba-REL kwamba (l) amba-REL (12) OS, OO, Time NP
(iii) Muyaka's poetry (133 poems) *-amba* occurs as verb	Mombasa 1810-1840	amba-REL kwamba (l) amba-REL (12) OS, OO, Time NP
Prose		
(i) Tippu Tip - dictated autobiography	South & Zanzibar 1902	
(ii) A Sapuli - L2 (21 personal letters)	South 1898-1912	
(iii) Folktales collected by Carl Velten	South 1903	Pro-amba-REL (l) amba-REL (6) all OS

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Text	Provenance & Date	Structural Characteristics
(iv) L'Ajjemy's history of the Wakilindi	Zanzibar & South 1907	amba-REL (4) OS, OO
(v) Shaaban Robert - autobiography (5000 word corpus extracted)	South 1949	amba-REL (19) OS, SS(I), OO, Possessor NP, -REL [Time Adv] V (2) -REL [Place Adv.] V (2) 6 of the 19 have a non-restrictive function (not indicated by punctuation)
(vi) M S Mohamed - novel (5000 word corpus extracted)	Zanzibar 1976	amba-REL (24) OS, SS, OO, SO, Possessor NP, Locative NP -REL [Time Adv] V (3) -REL [clause] V (I) 16 of the 24 have a non-restrictive function - all indicated by punctuation

(i) In Harries (1962: 90-102)
(ii) In Allen (1971: 370-427)
(iii) In Abdulaziz (1979)

Neither of the first two prose texts contains an example of *amba*-REL. Tippu Tip's autobiography was dictated to the German linguist, Brode, and published in the *Mitteilungen des Seminars für Orientalische Sprachen*. The fact that it was dictated no doubt accounts for the somewhat 'staccato' style, characterized by relatively simple sentence structure with juxtaposed or conjoined, rather than embedded, clauses.

There are, however, plentiful examples of relative clauses of Types 1 and 2, particularly time clauses. It is not absolutely certain that Swahili was Tippu Tip's first language although this seems likely; he would almost certainly have sometimes needed to use Arabic as a primary working language, and also Nyamwezi with some of his relatives, particularly the women. The letters written by Agnes Sapuli in Southern Tanzania contain no examples of *amba*-REL either. She was a Yao speaker who learned Swahili as a second language at a UMCA mission school where she was taught by teachers who had themselves been taught by Steere and his contemporaries. There is ample evidence that Steere's 1870 grammar was the model for Swahili teaching and for the language of the school textbooks in all the UMCA schools in the two mainland areas where they established mission-stations; as we have seen, *amba*-REL was not part of the codified model.

The folk-tales (iii) collected by Velten from informants on the Tanzanian coast have a very small number of occurrences, and it is notable that they are all of the OS type. Although Velten referred to this structure as 'veraltete', it may well have been an innovation for his speakers, it is the themes of folktales that remain unchanged, not the morphosyntax. Prose text (iv) is from L'Ajjemy, a Zanzibari, who travelled to and from the Tanzanian mainland in the course of his work. The small number of occurrences, all of which relativize Object nouns, supports the innovation theory.

With Shaaban Robert, Swahili's first novelist, we come to a major factor in the part played by *amba*-REL in the syntactic elaboration of written Swahili - writers bilingual in Swahili and English, with English as the medium of their secondary education and beyond. I have deliberately chosen Robert's first extended piece of writing rather than one of the later novels, to show the extent of the syntactic complexity in which *amba*-REL was involved from the outset in his work, which became highly influential through its inclusion in school syllabuses. By 1949 when this text was published, occasional examples of *amba*-REL were beginning to appear in newspapers, biblical translations and

textbooks. In Robert's work we find *amba*-REL being used to mark non-restrictive relative clauses, interpretable as such from the context and, e.g. the antecedent being a proper noun. This trend, of *amba*-REL becoming associated with non-restrictive clauses, is taken much further in the text from Mohamed's work; in his case they are clearly marked off, as in English, by commas. Notice the relativization of NP's lower down the 'accessibility hierarchy' (see §2 above) in the texts from Robert and Mohamed. (That *amba*-REL clauses of time occur in the early poetry is evidence of the structure's long-established presence in Northern Swahili). In Mohamed's text we also notice the full range of types of phrase structure in which *amba*-REL occurs. Finally, in addition to the various types of non-clause adverbial structure inserted between *amba*-REL and the verb of the relative clause, we note, in the Mohamed text, a full clause in this position. This is very much a feature of relatively recent Swahili and is particularly common in journalistic material.

Journalists, like other professional communicators, receive their secondary and higher education through English and are inevitably influenced by English written styles. In addition they are frequently required to render international newsagency copy into Swahili, and this tends to result in extensive calquing. The following examples demonstrate the kind of effect brought about by this situation. Relative clauses are underlined; elements inserted between *amba*-REL and the verbs are in square brackets.

(15) Rais Barre ambaye [kwa mara mbili mfululizo] alitaka kusimamishwa kwa mapigano tangu kuzuka kwa ugomvi huo, alisema Ijumaa kuwa alikuwa tayari kujiuzulu. (Uhuru 8.1.91)

'President Barre who [on two successive occasions] has been on the point of being forcibly ousted since the outbreak of this fighting, said on Friday that he was ready to resign.'

(16) Ndugu Walele alisema kuwa maofisa wa polisi walikwenda kwa helikopta kwenye sehemu ambayo [inadhaniwa] jahazi hilo lilizama ili kuangalia hali ilivyo. (Uhuru 17.8.83)

'Comrade Walele said that the police officers went by helicopter to the area in which [it is thought] the dhow sank in order to assess the situation.'

(17) nchi yake pia inapendelea kuwepo utaratibu wa kubadilishana bidhaa ambao [alielezal utakuwa na manufaa zaidi kwa Tanzania kutokana na kukabiliwa na hali ya fedha za kigeni (17.8.83)

'his country also desires the establishment of a trade agreement which [he explained] will be of increasing benefit to Tanzania in facing its difficult foreign currency situation.'

The syntactic flexibility afforded by the use of *amba*-REL is shown in example (15) where a leftward movement rule (not possible with relative clause Types 1 and 2) enables one adverbial structure to precede the verb and the other to follow it. Examples (16) and (17) show the direct influence of English journalistic style, with the use of the 'higher level' clauses *inadhaniwa* ('it is thought') in (16) and *alieleza* in (17), immediately following the relative pronoun.

The importance of *amba*-REL for the development of written Swahili, and the increasing divergence of the spoken and written language, is that it provided a linguistic context for one area of the grammar to become more analytic. It is through the agency of writers bilingual in Swahili and English that this analytic context has been exploited to the full and brought about syntactic convergence at a surface level in certain written styles.

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POST-VOCALIC /R/ IN SINGAPORE ENGLISH*

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1. Introduction

The pattern of use of post-vocalic /r/ in Singapore English appears to be undergoing change. In general, the distribution of /r/ in Singapore English is like RP in that /r/ occurs only pre-vocalically. The presence of a post-vocalic /r/ has never been mentioned in studies of Singapore English pronunciation. From informal observations over recent years, however, Gupta has come to feel that some Singaporeans - more specifically, young and high-prestige individuals - increasingly display post-vocalic /r/-usage in their speech. This paper reports the results of a sociolinguistic study conducted in 1989 in response to these observations.

The objectives of the study were two-fold:

(1) to find out if it is likely that more systematic study could show the distribution of post-vocalic /r/ to be correlated with social factors in Singapore, and what these factors might be, and

(2) to determine if post-vocalic /r/-usage is perceived to be a prestige feature by those who use it.

The linguistic variable (r) corresponds to an orthographic <r> in post-vocalic position. (r) may be realised consonantally by /r/ or zero. Our study suggests that the use of post-vocalic /r/ may indeed be correlated with age, sex and identification with a peer group. It also appears that post-vocalic /r/-usage is a new feature being introduced into

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Singapore English in imitation of American English, in most varieties of which the use of post-vocalic /r/ is a prestige marker.

Speakers are regarded as identifying a feature as a prestige marker if they show an increased use of that feature in more formal styles (Labov 1966). Le Page (1985) describes linguistic behaviour as involving 'acts of identity' which result in individuals 'revising' their own verbal behaviours to resemble those of the social groups they wish to be identified with. 'Prestige' in this sense is not necessarily related to prestige on a mono-dimensional social class scale. Trudgill's study of British pop song pronunciation (1983), Romaine's investigation of the loss of post-vocalic /r/ in Scottish English (1978), Milroy's study of Belfast speech (1980), and Mees' observation of glottalization in Cardiff speech (1987) all indicate that certain linguistic features are adopted in imitation of what speakers perceive to be prestige norms for them.

2. Methodology

2.1 Getting the Informants

Milroy's concept (1980) of the sociolinguistic researcher as 'a friend of a friend' was adopted. A particular effort was made to find individuals who used post-vocalic /r/. The interviews were conducted by Tan. The sampling method helped to lower the social barrier between the researcher and the respondents, ensuring friendly and more open and co-operative participation from them, but of course the sample is not representative of the Singapore population or of the English-speaking population. The use of post-vocalic /r/ appears to be an innovation which is at present used by only a small minority of English-speakers. We feel it is more important to be able to see what may turn out to be the beginnings of a change in this way rather than to attempt a study to show the proportion of post-vocalic /r/-use in Singapore.

Friends of the researchers acted as 'go-betweens', informing their own friends, colleagues or relatives about the study and enquiring if they would serve as respondents, explaining briefly what that would involve. Potential respondents had to satisfy only one condition - ability to speak and read English. In all, 21 respondents from various social backgrounds were obtained.

2.2 Selecting the Texts

Three speech styles representing the range of stylistic variation were selected: the Interview Style (IS) for the most informal context examined and the Reading Passage Style (RPS) and Word List Style (WLS) for more formal contexts. These contextual styles were set up to observe the correlation between (r) and stylistic variation. Realizations perceived to be prestigious by respondents can be expected to be associated with higher usage in the formal contexts. Milroy (1980:103f) found that her Belfast speakers did not always move towards the prestige norm when reading aloud, and cautions against always using a linear continuum model. However, she adds that respondents who place a higher value on reading skills than on conversational skills *are* likely to move towards a prestige norm when reading. Furthermore, when readers 'are able to use the spelling system as a reliable guide' (Milroy 1980:106) to a prestige norm they are more likely to move in the traditionally Labovian direction. The Singapore respondents are likely to attribute a high value to reading skills, and in the case of /r/ are able to make use of the spelling system. There is no reason to suppose that they move towards a vernacular norm in this case.

All the interviews and passage- and word-list readings were recorded in the respondents' own homes, offices or other surroundings familiar to them.

2.3 The Interview

Following Labov (1966:137), the interviews were designed to serve a double purpose:

(1) to provide the context for different styles of speech, and
(2) to gather information about the respondents' social backgrounds.

The interview sessions were kept very conversational, and did not follow a strict question/answer order. They were not structured into 'casual' and 'formal' sections as it was felt that the use of post-vocalic /r/ by the respondents in casual contexts would be very low, and that a concentration on style shift to the most formal contexts would be more valuable. This was the case: no informant had more than 17% post-vocalic /r/-use in the interview style.

Social background information from the respondents was elicited in the course of the interview on the following social variables:

(1) age
(2) sex
(3) ethnicity
(4) place/type of residence
(5) occupation
(6) religion
(7) schools/institutions attended
(8) language(s) used with family members/friends/colleagues
(9) interests/hobbies
(10) favourite television/radio programmes
(11) favourite movie star/singer/pop group
(12) most frequent form of transport
(13) places frequented for shopping/entertainment/meals outside home/other services (e.g. hair-dressing, medical, dental, etc.)

All these social variables were tentative categories which it was felt might reveal information about the social patterns of the respondents. As Le Page (1985) and Pellowe and Jones (1978) have noted, acts of identity may be based on very subtle social information.

2.4 The Reading Passage

The reading passage dealt with an informal topic. Instances of (r) in various linguistic contexts - word/syllable-final, pre-consonantal and juncture (linking /r/ and intrusive /r/) positions - were included. The lexical items were not made too advanced since two of the respondents were only ten years old. All the informants found the passage easy to read.

Each respondent was asked to read the passage aloud, as naturally as possible, not in the manner of comprehension reading in school, to avoid the use of a formal slow reading style in which the use of juncture features might be reduced or even absent.

2.5 The Word List

The word list (Appendix 2) comprised 36 items, 18 of which did not have (r). The words were displayed as pairs as near minimal as possible, to draw maximal attention to the presence of (r). The items were also kept simple for the benefit of the younger respondents.

Respondents were told to read the items aloud at a normal pace and as naturally as they could.

3. Analysis Of Results

3.1 Method of Analysis

The percentage of post-vocalic /r/-usage in each of the three contextual styles was obtained by dividing the total number of occurrences (r):/r/ by the total number of (r) and then multiplying the result by 100. In the IS, the number of (r) occurrences varied since the length of the interviews and the choice of words varied with the respondents. Analysis was restricted to 600 words from each of the respondents. Three sections, each of 200 words, were taken from the beginning, middle and end sections of each interview to allow more comparability. Based on the total percentage of post-vocalic /r/-usage in all the three styles, the respondents were ranged on a scale from 'high' to 'low' (respondents are subsequently identified by their rank number), and their social backgrounds examined to determine what social factors were linked with high usage.

3.2 Some teething problems

One problem involved linking /r/ and intrusive /r/ which had to be analysed apart from the main analysis since they were only found in the IS and RPS; including instances of these two types of /r/ would have rendered the data inconsistent. Another problem concerned hypercorrection; there were six such instances - one in the IS (/əmerɪkər/), two in the RPS (/vərɔnɪkər/) and three in the WLS (/ðər/, /dər/). These were also analysed separately from the main analysis.[1]

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[1] The phonemic transcriptions are based on the conventions used by Brown (1988b). He 'hesitate[d] to assign phonemic status' to his symbols, but they were certainly appropriate for the pronunciation of the majority of the informants. Our adaptation of Brown (1988b:134) has the vowel phonemes as follows:

[ɪ] *fleece, kit*	[ɔ] *lot, thought*	[aɪ] *price*
[e] *face*	[o] *goat*	[ɔɪ] *choice*
[ɛ] *dress, trap, square*	[u] *foot, goose*	[aʊ] *mouth*

The third problem involved /ɪ/ and /l/. Two respondents articulated /ɪ/ but not /l/ in words where <r> preceded <l> in the orthographic representations (*barely*, /berɪ/; *nearly*, /nɪərɪ/). In another instance, schwa was inserted between <r> and <l> (*Karl*, /karəl/). *Ireland* also posed difficulty as it was pronounced in many different ways by the respondents. In two other instances where the orthographic representations of a word had word-final <l> but not <r>, /l/ was preceded by /ɪ/ in one case (*gull*, /garɪ/) and replaced by /ɪ/ in another case (*towel*, /tauər/).

There were 4 instances of non-historical prevocalic /ɪ/ from two respondents (*house*, /hraus/; *tyre*, /traɪjə/; *fancy*, /frensɪ/; *favourite*, /freɪvrət/). These do not affect the analysis, but do indicate some of the problems in sociolinguistic research in a community in which variable proficiency in English results in particular difficulties for the analyst.

Intervocalic /ɪ/ occurred as an intrusive element in *about it* (/əbau rɪʔ/), *got out* (/gɔʔrauʔ/) and *sort of* (/sɔrɔf/). It also replaced /d/ in another instance - *Braddell* (/brerəl/).

Misreadings were also seen: *tuner* (/tənər/), *Karl* (/karɪ/) and *Ireland* (/aɪslən/) probably because these are less familiar words.

The data for analysis included only the clear-cut cases of post-vocalic /ɪ/.

4. Findings

As can be seen in the table in Appendix 3, there is a small group of 7 respondents (1-7) who are high post-vocalic /ɪ/-users. /ɪ/-usage by these respondents generally shows the greatest rate of increase from the RPS to the WLS, indicating that they perceive post-vocalic /ɪ/ to be a prestige feature in Singapore English, since their use of /ɪ/ increases with the formality of the style. Many of the /ɪ/-users display inconsistent patterns of stylistic variation, and there are two non /ɪ/-users (in the community as a whole, however, non /ɪ/-users are likely

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[ʌ] *palm, strut* [ə] *nurse, (comm)a* [ɪə] *near* [uə] *poor*

to be in the majority). Two respondents (12 and 16), who reduce /r/ in the more formal styles, seem to treat post-vocalic /r/ as a stigmatized feature. It would be of interest to establish how prevalent this is in the community. Respondent 12 is ethnically Indian, while 16 is Chinese-educated, but the associations of this pattern remain to be established.

4.1 Post-vocalic /r/-usage and age differentiation

The younger respondents tend to display higher post-vocalic /r/-usage. Respondents 1, 2, 5, 6, and 7 were between ten and eighteen years old when the study was conducted (the high scores of respondents 3, 4, and 8 are explained in §4.4 below). The teenaged respondents 1, 2, and 5 follow the pop culture and entertainment programmes which attract a large following among young Singaporeans. Since many of the activities in the Singapore music and entertainment scene are mostly 'American imports', this may be a major source for their incorporation of post-vocalic /r/ into their speech. Respondents 6 and 7 are not followers of pop culture, but identification with American pop culture is not the only influence on the use of post-vocalic /r/. It is likely that the use of post-vocalic /r/ is also associated with groups within particular schools, something which needs systematic study. In the less prestigious schools, informal observation suggests that post-vocalic /r/ is seldom heard, while children from the convent schools and prestigious government schools (such as the school attended by 6 and 7) are particularly likely to use it.

4.2 Post-vocalic /r/ and sex differentiation

Female respondents tend to display higher post-vocalic /r/-usage. Out of the seven high /r/-users, only one is male. Significantly, /r/-usage among the students (1, 2, 5, 6, 7, 9, 10, 15) also displays a clear pattern - all the girls are high /r/-users, with at least 20% higher /r/-usage than the boys. Trudgill found that women tend to use more of what they perceive are prestigious speech forms probably because they are more status-conscious than men (1974: 94). Men are responding to another kind of prestige. The female respondents in our study also seemed to be more confident of ability to use English - all of them responded positively when contacted and most had no reservations about being interviewed at home. Many of the male respondents appeared to

be less sure of their proficiency - three men turned down the request when told that they had to read a passage and word list, and that the entire session would be recorded. Three others preferred the sessions to be conducted 'somewhere outside' while another backed out of the interview at the last minute. The uneasiness of these men might have been due to the difference in sex between the researcher and themselves - despite being a friend's friend, the researcher was not really 'one of them'; in Milroy's terms (1980), they were not part of the same social network.

4.3 Post-vocalic /r/-usage and peer group influence

Peer groups were found to exert a strong influence in the use of post-vocalic /r/ by the younger respondents. Respondents 1 and 2 share a very close relationship (they are cousins, in the same class, and share similar interests), and they display nearly the same level of post-vocalic /r/-usage. Respondent 5 also has similar interests as them and gets along well with them on a classmate basis but she does not belong to the 'clique' of respondents 1 and 2 and shows much less post-vocalic /r/-usage. Similar findings have also been observed by Labov (1972), Le Page (1985) and Milroy (1980) where individuals who wish to be identified with certain social groups adopt the linguistic norms and patterns common to these groups. In Labov's classification (1972: 257), respondent number 5 is a 'peripheral' member of the group to which respondents 1 and 2 belong; in Le Page's terms (1985: 115-116), the English of respondents 1 and 2 is 'focussed' while that of respondent 5 is 'diffuse'. That such a correlation may exist was confirmed when respondent 1 revealed that she had tried to change her speech patterns in imitation of a close Indian friend's English which sounded 'very nice' to her. What is even more significant is that respondents 1 and 2 had taken up Hindu Studies (an interesting choice since both girls are Chinese) upon the persuasion of this Indian friend. Respondents 1 and 2 are evidently under much influence from their peer group. There is no reason to suppose that in the community as a whole the Indians are more likely to use post-vocalic /r/.

Respondents 6 and 7 constitute another peer group. These girls attend different prestigious primary schools, but were formerly classmates in kindergarten; their friendship is reinforced by the fact that

their parents are colleagues. Their closely similar scores may be the result of mutual influence between themselves, or may reflect a more widespread use of post-vocalic /r/ in the prestige schools of Singapore.

4.4 Post-vocalic /r/-usage and self-consciousness

Respondents whose style shift shows that they perceive post-vocalic /r/-usage to be prestigious may be more self-conscious of their speech generally. The three older high-scoring respondents (3, 4, and 8) indicated in the interview that they were self-conscious about their English. Respondent 3 shows the highest rate of increase of post-vocalic /r/-usage - 40% - from the RPS to the WLS. Her self-consciousness may be due to the fact that she is an English Language teacher so she felt she had to articulate her words 'properly'. Respondent 4 also conducts English classes and is interested in radio programmes on English.

The relatively high rate of post-vocalic /r/-usage by respondent 8 may be explained by the fact that he had intensive direct exposure to American English when he was in Washington for six months. Being Chinese-educated could have generated much linguistic insecurity in him, resulting in a particular receptivity to the influence of American English. His phonology was in several respects different from that of the rest of the high-scoring group (for example unlike them he had inconsistent distinction between /l/ and /r/).

4.5 Linking /r/, intrusive /r/, hypercorrection and the instability of /r/

It is significant that the high post-vocalic /r/-users are also those who tend to use linking /r/ (Appendix 3): five of the seven high /r/-users show linking /r/-usage, indicating that they are more aware of the use of post-vocalic /r/. In general, however, linking /r/ is not used to a great extent by the respondents, confirming earlier findings (Brown 1988, Tay 1982) that the use of linking /r/ is not a common feature in Singapore English. There was no incidence of intrusive /r/-usage in the IS. In the RPS, the respondents who used intrusive /r/ are again the high post-vocalic /r/-users. This is anomalous because intrusive /r/-usage is found only in those who do not use post-vocalic /r/. The respondents who use intrusive /r/ and post-vocalic /r/ seem to be

incorporating into their speech linguistic features which are exclusive to one another. This suggests the mixed origins of (r) in Singapore English as well as the linguistic instability of (r). The instability of (r) may be due to the fact that a Singapore English speaker who uses post-vocalic /r/ has reintroduced it to the variety on the basis of orthography, grafting it on to a variety in which it was absent. Other complications may arise from the competing prestige of RP, and from older varieties of Singapore Educated English. Hypercorrection patterns were also observed only among the high post-vocalic /r/-users (Respondents 1, 2, and 7) and the number of such instances increased from the IS to the WLS, further indicating that these respondents are aware of post-vocalic /r/ as a linguistic feature and that they are linguistically insecure with regard to (r), since they 'overcorrect' their pronunciation in their attempts to approach what they believe is a prestige norm. Labov also noted hypercorrection suggesting linguistic insecurity in (r) in his department store study (1972: 64-65).

5. Conclusion

(r) was shown to be indeed a sociolinguistic variable, with post-vocalic /r/ being a prestige feature for some speakers. We may be looking at the beginnings of a sound change. Post-vocalic /r/-usage may increase in time if these respondents continue to use post-vocalic /r/ in their speech and other young Singaporeans are influenced into adopting it. This may well happen, since many young Singaporeans have rather positive feelings towards American English. As respondent 10 remarked, '... our English is mostly ... influenced from America ... we tend to understand American English much better than British ... American English is much better, it's straightforward ...'. The Americanisation of Singapore's youth is well-known at a popular level. For example, a recent full-page feature newspaper in a Singapore newspaper (*The Sunday Times*, 7 April 1991) referred to the Americanisation of young people, citing behaviour, accent, and vocabulary. The feature begins with a profile of an elite school product:

> If you listen to Miss Germaine Tan without looking at her, you would think she grew up in America. The 16-year-old ex-student of Nanyang Girls' High School says: 'I can't remember when I began

speaking this way. It was just one day, I started realising, hey, I sound different.'

The use of a post-vocalic /r/ is also functional in Singapore English as it disambiguates words which would otherwise be homophones in most varieties of educated Singapore English. The pairs on the word list which would be so disambiguated are: *barely/belly, pour/paw, mar/ma, tuner/tuna, dared/dad, short/shot, carp/cup, buyers/bias.*

It must be pointed out, however, that although this study has revealed some socially meaningful patterns in the (r) variable in Singapore English, it was conducted on a very small scale. Moreover, there is no basis of comparison nor possibility of verifying these patterns since no previous research has been attempted on the relationship between the (r) variable in Singapore English and social factors. Conclusive evidence must thus await investigations of a more extensive scope where other factors of a social and psychological nature (such as social aspirations or personal ambitions) could be included, or comparisons made of findings from language and social-network studies between high and low post-vocalic /r/ users.

APPENDIX 1
THE READING PASSAGE

A number of days ago, my friend, Karl, and I, saw this rather amusing incident from my window.

A park-attendant was talking to a guard when he saw a young woman and three children get into a car which was in the garden of a house by the park. He recognized the four of them as Bert's wife, Veronica, and their kids, who had just returned from Ireland, where they had been for a short holiday. Although it was dark, he noticed that the car had a flat tyre and called out, 'Veronica! Veronica!' to warn her about it, but it was too late - he had barely reached the gate of the park when he saw her turn into the street, so he gave up running.

The woman stopped the car at the side of the street, got out and looked at the flat tyre while the children stayed in the car. The boy was playing with his pet spiders, but the girls dared not touch them. The prettier daughter had flowers in her short hair and was amusing herself

with a toy guitar while the other girl was looking at some pattern book.

After a while, a car stopped and the driver offered to help the woman. He rolled up his shirt sleeves and changed the tyre for her. When he had finished and gone, she drove her car back into her garden, got out with the children and went back to her work in the garden - with clean hands.

'The idea of it!' I had exclaimed. 'Fancy coming up with such a trick!'

APPENDIX 2
THE WORD LIST

barely		dared	dad
	belly		
pour		short	shot
	paw		
mar		carp	cup
	ma		
guitar		term	atom
	cheetah		
stir		pattern	fatten
	the		
tuner		pierce	piece
	tuna		
tower		Karl	gull
	towel		
prettier		buyers	bias
	India		
Ireland		Jaguars	Hondas
	island		

APPENDIX 3

OVERALL STRATIFICATION BY PERCENTAGE OF POST-VOCALIC /r/-USAGE

Rank	Sex	Age	percentage postvocalic /r/ IS	RPS	WLS	Total	/r/ as prestige feature	presence of linking /r/	intrusive /r/
1	F	18	17.3	34.0	27.8	79.1	+	+	+
2	F	18	15.8	21.3	38.9	76.0	+	+	+
3	F	36	7.1	10.6	50.0	67.7	+	-	-
4	M	35	13.5	21.3	27.8	62.6	+	+	-
5	F	18	12.5	17.0	27.8	57.3	+	+	+
6	F	10	9.4	8.5	38.9	56.8	+	-	-
7	F	10	11.8	10.6	33.3	55.7	+	+	+
8	M	42	4.5	19.1	11.1	34.7	?	+	-
9	M	14	3.6	17.0	11.1	31.7	?	+	-
10	M	18	5.7	4.3	16.7	26.7	+	+	-
11	F	23	3.6	2.1	16.7	22.4	+	+	-
12	M	25	16.7	4.3	-	21.0	-	-	-
13	F	30	2.4	10.6	5.6	18.6	?	+	-
14	F	32	3.7	6.4	5.6	15.7	?	+	+
15	M	18	2.4	6.4	5.6	14.4	?	+	-
16	F	23	8.1	4.3	-	12.4	-	+	-
17	M	22	4.5	2.1	5.6	12.2	?	-	-
18	M	31	-	6.4	5.6	12.0	?	-	-
19	F	28	2.9	8.5	-	11.4	?	-	-
20	M	34	-	-	-	-	–	-	-
21	F	30	-	-	-	-	–	-	-

Notes:
+ post-vocalic /r/ is prestige feature
? unclear whether /r/ is prestige feature
- post-vocalic /r/ not a prestige feature
– non-user of post-vocalic /r/

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A LEXICAL DEFAULT ACCOUNT OF ENGLISH AUXILIARIES

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Introduction

I propose that English auxiliaries share a simple property which accounts for some of their less tractable idiosyncracies. The property is just that they do not show morphosyntactic inflectional regularities. I claim that the relationship between auxiliaries and full verbs is a distant one, and in particular that the morphosyntactic categories which auxiliaries clearly manifest are not inflectional, as is the case in full verbs, but are instead lexically specified. Thus the existence of such individual items as *shall*, *been*, infinitive *have*, etc. is not predictable by virtue of inflectional rule or sub-categorial regularity, as it would be in the case of full verbs, and they may have idiosyncratic properties which are not shared by other members of the lexeme. This account makes sense of the ordering of auxiliaries, of the double-*ing* constraint on progressives, of the idiosyncratic behaviour of *being* and *having*, as well as of a series of other idiosyncratic properties. On the other hand auxiliaries clearly share a range of properties. In Warner (1992, forthcoming) I have presented an account of this redundancy within a Head-driven Phrase Structure Grammar theory of the lexicon. Here I want to explore an alternative formulation within a system of defaults adapted from that of Generalized Phrase Structure Grammar, a formulation which can equally be seen as effectively constituting a partial definition of the class 'auxiliary'. In what follows I shall briefly outline the analysis, review some of the arguments for it (there is a fuller account in Warner, forthcoming) , and present the default account.

1. Auxiliaries and Problems

The English auxiliaries are rather sharply defined as a group by distinctive formal properties. Central to these properties is their

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behaviour in negation, inversion and ellipsis, as illustrated by the italicized items in (1).

(1) *Could* John have written it if Mary *didn't*? - No, it *was* not written by a man.

The group includes both modal auxiliaries (principally *can, could*; *may, might*; *must*; *shall, should*; *will, would*) and non-modal auxiliaries (*be, have* both perfect and possessive, the 'supportive' or 'periphrastic' *do* of *Did he come?- No, he didn't come*, and the infinitive marker *to*, see Pullum 1982) The traditional formal criteria for auxiliaryhood form a well-trodden territory for which see esp. Palmer (1988: 14ff.), Huddleston (1980), Quirk et al. (1985: §3.21ff.).

The analysis of these words poses a series of longstanding problems. Here I want to focus on the following.

(i) What category do they belong to? In particular (and avoiding a polarized view of the relationship between verbs and auxiliaries), how verb-like are auxiliaries?
(ii) How is it that some of their categories are missing?
(iii) Why are they ordered as they are?
Here the last two can rather obviously be seen as two aspects of the same problem, and I will suggest that the same is in fact true of all three.

The fixed ordering is that shown in (2). Thus modals and periphrastic *do* are always first in their verbal group in Standard English, and perfect *have*, 'progressive' *be*, and 'passive' *be* do not iterate and only occur in the order of (2.b).

(2) a. The morning would have been being enjoyed.
b. modal - perfect *have* - 'progressive' *be* - 'passive' *be* - main verb

Ordering clearly interlocks with the the availability of morphosyntactic categories. If modals and periphrastic *do* only have finite categories, they cannot occur after other auxiliaries in their verbal group as in (3). Here it is apparently the restriction to finite which is primary, since

modals and periphrastic *do* are not available in other nonfinite positions, cf. (4). The same restriction affects *is to*, which is also only finite.

(3) a. *John will must leave tomorrow.
b. *John has could make some headway.
c. *Mary will do laugh at this example.
d. *Mary has done laugh at this example.

(4) a. *(For John) to must leave tomorrow .... (cf. to have to ...)
b. *John's musting leave tomorrow ....(cf. having to ...)
c. *(For John) to do laugh at this example.
d. *Mary's doing leave early is a shame

Similarly, the absence of iterated perfects and progressives, as of the progressive perfect, could be predicted from the absence of the relevant categories. Thus the failure of the perfect to iterate as in (5.a) would follow if perfect *have* lacked a past participle, and *mutatis mutandis* for (5.b, c). In these cases either ordering or the availability of categories might apparently be taken as prior. 'Passive' *be* may be different though; arguably it cannot precede 'perfect' *have* and 'progressive' *be* because they are not transitive.

(5) a. *John has had finished. *perfect + perfect
b. *Mary is having left. *progressive + perfect
c. *Paul was being singing *progressive + progressive

The problems noted above as (ii) and (iii) then are clearly interrelated, and a basic question is: What is a coherent and adequate account of these facts of ordering and availability of categories?

2. Previous Accounts

Approaches to these questions have been both formal and semantically based, but no convincing answer has yet been offered.

The most recent detailed account (Pollock 1989) does not discuss the problem of the mutual ordering 'of aspectual' *be* and *have*. He treats modals as restricted to initial and finite because they are generated in

finite INFL (more technically in T). But this leaves a range of questions unanswered, in particular how the restriction on *is to* might be accounted for since *is* shows agreement, and *to* is also generated within nonfinite INFL, and why it is that periphrastic *do* (which is generated in AGR) is restricted to finite.

Earlier approaches can be somewhat brutally divided up under three heads, according to the centrality of syntactic, morphological or semantic principles. Two earlier syntactic accounts are particularly important. The first is that of Akmajian, Steele and Wasow (1979) (hereafter 'ASW'). Here modals and periphrastic *do* are generated in AUX, though it is unclear why this restricts *do* in particular to finites since *to* is also generated in this position; and no account is given of the problematic *is to, ought to*. The ordering of perfect, progressive and passive depends on the presence of three distinct bar levels within VP. But there are difficulties both of justification and misgeneration, for which see Lapointe (1980b) and Gazdar, Pullum and Sag (1985: 628f.). The second important syntactic account is that offered by Gazdar, Pullum and Sag (1982) (hereafter 'GPS'). Here modals are stipulated finite in the phrase structure rule introducing them. They also give a formal account of the ordering of perfect *have* and 'progressive' *be*: syntactic conditions rule out the combinations of feature values required for the progressive participles *having* and *being*, and a perfect participle *had*. Hence the ordering facts exemplified in (5) above are imposed. Their account, however, is ultimately unconvincing because it offers no explanatory rationale or justification for setting up the analysis as it does.[1] An account along similar general lines was offered in Warner (1985). This achieved observational adequacy within an economical generalization, but it too failed to offer the more general theoretical underpinning required for plausibility.

Defectiveness has often been seen as underlying the restriction of modals to finiteness within the 'auxiliaries as main verbs' tradition. This typically morphological property is sometimes seen as supported by their irregularity: what needs to be listed may have a gap instead of an entry (McCawley 1971, 1975, and very forthrightly, Pullum and

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1 Moreover, it depends on the ad hoc adoption of particular features and further restrictions; see Warner 1985: 17 for some comments.

Wilson 1977: §3.4). The problem here is that of understanding why the gap is preserved, why what is systematic for full verbs cannot be extended to modals, and (even more remarkably) why the full paradigm of other uses of *be* and *do* is not extended to *is to*, and to periphrastic *do*. Baker (1981: 315) suggested the principle that 'partially filled paradigms in which the attested forms show a high degree of irregularity are exempted from the effect of general morphological redundancy rules.' On his account, since modals lack the third singular *-s*, they are exempted from rules forming nonfinites. But Baker does not really show that his principle is appropriate or sufficient. He refers in support to the absence of a past participle of *stride* (following Pullum and Wilson 1977): 'Given that the existing forms suffice to identify this verb as irregular, the paradigm is immune to being completed by the regular rule' (1981: 316). But here it is easy to believe that the problem is essentially morphological, since there are only seven verbs in the relevant subgroup (Quirk et al. 1985: §3.16) and alternative analogies are available (*broke - broken*). It may be indeed be that speakers have an insufficient basis here to predict a particular form. But there would be no morphological problem predicting the base form of *can* or *will*. Baker also suggests that perfect *have* lacks a past participle, thus accounting for the absence of (5.a). Here he appeals to a second principle: 'paradigms for radically different senses of the same word (possibly radically different subcategorizations) must be stated independently of one another' Baker (1981: 316). This would also be directly relevant to periphrastic *do*. But this principle seems implausible because it contradicts the position on the morpheme convincingly argued for by Aronoff (1976) that formal interrelationships may be independent of meaning, hence *stand stood: understand understood*. This would imply that Baker's principle should read 'paradigms ... *may* be stated independently of one another' and this would be insufficient.

Semantic principles have often been suggested as a plausible rationale for the ordering of aspectual *have* and *be*. For example the lack of a progressive perfect **is having* has been referred to the general absence of progressive statives, or to the general impossibility of using a perfective complement after a 'verb of temporal aspect' (McCawley 1971, Emonds 1976: 209-210; also Pullum and Wilson 1977, Iwakura 1977 for related claims). ASW: 18-20 show that the classification of *be*

and *have* as 'verbs of temporal aspect' on which some of these accounts depended is flawed. But they raise a more essential problem for semantic accounts, that violations of semantic constraints are sometimes comparatively acceptable, unlike the the constraints on auxiliary ordering which are surely fully grammaticalized and inviolable (see ASW: 18-20, GPS: 618-619), despite Schachter's attempt to treat particular instances of violation as 'marginally tolerable' (1983: 157ff.) The most recent general semantically based account is given in Falk (1984). But what he says is inadequate, for the reasons noted in Warner (1985 note 2). Mittwoch (1988) also gives an account of the absence of the perfect progressive. But it should permit iterative interpretations with appropriate adverbials, and her account of their absence is not convincing.

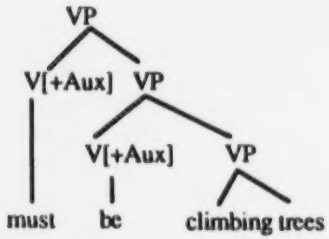
Thus there is not yet any coherent account of the ordering and categorial availability of English auxiliaries, whether based on syntactic, morphological or semantic principles. And the sharpness of these restrictions leads one to suspect that a semantic account will not be appropriate.

3. A New Lexical Account

I will argue (i) that the absence of particular morphosyntactic categories in auxiliaries is basic to their order, and (ii) that these absences follow from the fact that the word class 'auxiliary' is distinct in its internal morphosyntactic relationships from the class of full verbs. The occurrence of particular categories is not therefore to be automatically predicted; rather, they have the properties of listed items. Thus individual categories (which are mainly nonfinites) may be absent. Moreover, such individually specified categories may have distinct properties. In particular, they may differ in the morphosyntax they require of a following category.

In presenting this I will assume that auxiliaries (modals, *be*, and appropriate instances of *do* and *have*) are [+AUX, +V, -N], (though without great attachment to [+V, -N] which may turn out to be an irrelevancy), that they occur in structures like (6) for the reasons argued in GPS, and that they head their phrase.

(6)



Then modals are subcategorized for a plain infinitive phrase, *be* for a predicative phrase, *do* for a plain infinitive phrase which cannot be an auxiliary, etc. The analysis is much as in GPS, with the revision of Gazdar et al. (1985) that *be* is subcategorized for a predicative phrase lacking major category specification so that coordinations like (7) can be directly accounted for with an underspecified mother and more fully specified conjuncts within Sag et al's (1985) analysis of coordination. Thus 'progressive', 'passive' and predicative *be* are identified as the same category.

(7) a. I'm still expecting to go and very keen about the prospect.
b. Paul was taunted by his classmates and very angry as a consequence.
c. Paul is horribly misshapen, a creature of darkness, and thought to practice witchcraft. Please don't ask him round again.
d. The contraband was inside the wheel arch and thought to be safely hidden.

The lexicon will include the information given in (8). In (a) finite categories of modals and *do* are listed. In (b) the categories of perfect *have* are listed; note that *having* only occurs nonprogressive. In (c) are listed the categories of predicative *be* (which includes 'progressive' and 'passive' *be* as noted above). *Be* is however entered as a series of morphosyntactic categories whose subcategorizations are not all the same. I am assuming a distinction between inflectional interrelationships whose regularities lead automatically to the prediction of morphosyntactic categories, and the interrelationships of nonproductive word formation, which do not have this property. Given

this contrast my claim is that the structure of (say) *been* is akin to that of nonproductive word formation; it is a 'frozen' item, only derivatively to be analysed by the inflectional rule which predicts that verbs have past participles. This rule's proper sphere is [+V, -N, -AUX]. Hence *been* may have its own special properties, and does not have to share the subcategorization of *is*. Similarly the restriction of *is to* to finites is straightforward. I assume that 'modal' *is* should not be generalized with predicative *be*, since coordinations of *to VP* with other predicates after *be* are typically unacceptable. (When they are possible I will interpret them as zeugmatic.) Hence *is* is assigned two subcategorizations. *Being* also has a distinct subcategorization: it may not be followed by an *ing*-participle. Thus predicative, 'progressive' and 'passive' *be* are unified, but *be* is split along morphosyntactic lines.

(8) Auxiliary category and subcategorization information in the lexicon

Category	*Subcategorized for a phrase headed by*
a.	
can, could, etc. (finite)	plain inf
do (finite)	non-aux plain inf
ought (finite)	*to* inf
b.	
has (finite)	past ptc
have (plain infin)	past ptc
having (-progressive)	past ptc
c.	
is (finite)	non-inf predicate; *to*-inf
be (plain infin)	non-inf predicate
been	non-inf predicate
being (±progressive)	non-inf, non-*ing* predicate

This account most resembles earlier work by Baker (1981) and GPS (and Warner 1985 of which it is a development). It differs radically however in the nature of the underlying principles taken to control

ordering and the availability of categories, and therefore in its systematicity, which is most distinctive in its treatment of *be*.

The answers to the three questions which began this paper are then as follows.

(i) How verb-like are auxiliaries? The grammar must clearly specify for the morphosyntactic subcategories of a word class both that they typically occur, and the manner of their formation. I claim that for verbs the relevant statements are formulated as applying to V[-AUX]. If we conceive of this in terms of rules like the word formation rules of Aronoff (1976), or like the lexical redundancy rules of Jackendoff (1975), then for nonauxiliary or full verbs there is some explicit interrelating of the various morphosyntactic categories whose occurrence in the general case is thereby predicted, whether or not the lexicon is 'full entry'. But no such systematic statement is made about V[+AUX]. The morphosyntactic categories of auxiliaries simply have to be stated individually, hence the possibility of distinct properties argued for above. In support of this note how little the regular morphology of verbs applies to auxiliaries. The only fully regular combinations are *being* and *having* (on which see below). The interrelationships *do - does - did*, *have - has - had* are as much idiosyncratic as regular. If this is the best auxiliaries can do even when supported by homonymy with verbs, then it is reasonable to suggest that *be*, *do* and *have* do not show verbal inflection any more than modals do, but that they too exemplify something like nonproductive word formation, so that in so far as they are open to analysis this is a secondary, partial and nonproductive matter.

This implies that auxiliaries are distinct from full verbs in quite a fundamental way, in addition to the distinct properties noted above under (1). But it does not necessarily mean that auxiliaries are not closer to verbs than to other categories, or that they are not [+V, -N]; the nature of categorial interrelationship is complex, and polarizing such issues can be unhelpful.

(ii) How is it that some of their categories are missing? This general conundrum is immediately answered: the 'inflectional' properties or categorial regularities of auxiliaries give no basis for predicting

categories beyond those which are observed. This is a morphosyntactic property based in a word class difference. It does not therefore suffer from the problems noted for the morphologically based accounts discussed above, but can account equally for the restrictedness of *is to*, or *do*, or the absence of progressive perfect *having*, as for finiteness of modals. Thus gaps are preserved. In the case of periphrastic *do* and auxiliary *have* I suppose that forms are lexically specified and are parasitic on those of the nonauxiliary verbs in standard English; the fact that in dialect they are often uninflected is entirely in accordance with my analysis.

(iii) Why are they ordered as they are? The ordering of auxiliaries largely follows from their restricted set of morphosyntactic categories and the interaction of these with their complements.[2] Modals and periphrastic *do* must be initial in the verbal group because they are finite only. The ordering of English 'aspectual' auxiliaries is also directly and fully accounted for. Thus the absence of a progressive + perfect **is having left* follows from the absence of a progressive participle of perfect *have*, and similarly for the other restrictions of (5).

It is therefore morphosyntactic categories which are most directly ordered. Ordering has typically been thought of in terms of the lexemes and classes of lexemes involved: modals, perfect *have*, 'progressive' *be*, 'passive' *be*, as in (9.b). But (10.a) gives a more appropriate conceptualization (omitting nonprogressive *ing* forms for the moment). An auxiliary with a particular morphosyntactic category as its complement can only itself have categories which stand to the left of its complement in the list of (10.a). How it works can readily be seen from (11).[3]

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2 Together of course with the principle that ensures that the head of the complement carries the category of its mother.

3 There are three sets of facts here
(i) the requirement of each individual item that it should be followed by a specific morphosyntactic category
(ii) the availability of morphosyntactic categories of individual items, and
(iii) the ordering of morphosyntactic categories.
It is clear that either the second or the last of these is redundant, that is that (i) & (iii) ⊃ (ii), and

(9) a. The morning would have been being enjoyed.
b. modal - perfect *have* - progressive *be* - passive *be* - main verb

(10) a. finite - infinitive - past participle - progressive participle - passive participle.
b. For the morning *to have been being enjoyed* ... (infinitive - past participle - progressive participle - passive participle)
c. Paul *will be being tormented.* (finite - infinitive - progressive participle - passive participle)
d. Paul *has been tormented.* (finite - past participle - passive participle)
e. Paul *was being tormented.* (finite - progressive participle - passive participle)
f. John *would have been* miserable. (finite - infinitive - past participle)

(11) The ordering of auxiliary categories in the verbal group

Categories of auxiliary	finite	infin	past ptc	progr ptc	pass ptc
modals	+	Compt			
do	+	Compt			
'modal' *be*	+	Compt			
perfect *have*	+	+	Compt		
'progressive' *be*	+	+	+	Compt	
'passive' *be*	+	+	+	+	Compt
copula *be*	+	+	+	+	

Here 'Compt' (for 'complement') indicates the morphosyntactic category an auxiliary requires on a dependent verb or auxiliary, and '+' shows which morphosyntactic categories are available

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(i) & (ii) ⊃ (iii).
In Warner 1985 I took (i) and (iii) to be basic and predicted (ii). But I now believe that it is better to take (i) and (ii) to be basic and predict (iii).

4. Some Further Justification

'Double *ing*' constraint. This account also gives us an immediate integration of the double-*ing* constraint with auxiliaries. Note that it is not only the double progressive as in (5.c) which is unavailable, but cases like (12), where *being* is not itself progressive.

(12) a. *Paul's being talking ... (cf. The fact that Paul was talking)
b. *Paul walked along, being humming as he went.
c. *The choir being singing the national anthem was cheered by the crowd (cf. The choir which was singing ...)

Thus accounts which rule out the only the double progressive, like Schachter's (1983) semantic account, or the syntactic accounts of GPS and ASW, miss a generalization.[4] It looks very much as if the required statement is a syntactic or morphosyntactic one preventing contiguous *ing*-forms within the auxiliary group, as has often been suggested. It is apparently fully grammaticized and is therefore distinct from the stylistic restriction found with other (eg. aspectual) verbs, which is frequently violated. The straightforward statement that *being* is not subcategorized for an *ing*-form has already been adopted to prevent double progressives. It generalizes directly to the more general double-*ing* constraint, which is simply another fact of the same type, fitting within the general scheme suggested here.

Learnability. A central problem for any account of the ordering of auxiliaries is its learnability. Why should learners restrict the ordering in the appropriate way? Under the assumptions made here it is easy to sketch an idealized account of acquisition. Learners do not generalize the availability of auxiliary categories on the model of verbs. Instead they treat the forms as individual items, and make only more cautious generalizations. Note in support of this that children do not generalize verb properties to modals, but refrain from developing inflected third singulars, infinitives, complements with the *to*-infinitive, and so forth. Now, if at whatever is the appropriate stage of development, the separate forms of *have* and *be* are treated as items

4 For discussion of this topic in GPS and ASW see Warner 1985: 7 note 4.

which may have distinct properties, and are assigned properties on the basis of primary data, then there will be no progressive *having*, or past participle *had* for there will be no evidence for these categories. Similarly, *be* will be permitted with *ing*-complements, but *being* will not. So no 'double *ing* constraint' is added to the grammar: the effect follows directly as a failure to generalize beyond the primary data. Thus this account provides a trivial but real answer to Baker's (1981) 'learnability problem' for auxiliary order and for the failure of morphosyntactic categories to generalize.

Been to. There is a curious use of the past participle *been*. In construction with a phrase implying motion or purpose it can mean (roughly) 'gone'. See OED Be, *v*. B.6.

(13) a. I have not yet been to Helsinki, though I should like to go.
b. Nor have I been over the Golden Gate bridge.

This sense is not available for other forms of *be* (although it was in earlier English). Again this implies that the generalization of lexical sense and subcategorization normal across verb forms within a lexeme (past participle, indicative, infinitive, present participle) does not automatically hold for *be*. This can be straightforwardly stated within an account in which the morphosyntactic categories of *be* are individually listed in the lexicon and permitted to have distinct properties.

Being* and *having. These forms, in which verbal morphosyntax most obviously does generalize, show the weakest evidence of auxiliary behaviour, and are open to analysis as nonauxiliaries. For nonfinites the only good test of auxiliary status is provided by ellipsis. In American English, however, *being* and *having* fail this test, cf. the judgements reported in Akmajian and Wasow (1975), Iwakura (1977, 1983), GPS, and elsewhere.

(14) a. *Kim is being noisy and Sandy is being, too.
b. *Kim was being watched by the FBI, and Chris was being, too.
c. *Kim's having resigned was surprising, but Lee's having came as no surprise.
(examples and judgements from GPS: 607)

The simplest account of such data is that ellipsis 'is blocked if an *ing*-form immediately precedes the deletion target' (GPS: 624, and cf. Sag 1977). This generalization will be captured if the grammar does not generate auxiliary *ing*-forms with post-auxiliary ellipsis. But now we can see a motivation for the puzzling failure of post-auxiliary ellipsis to generalize. The overt transparency of formation of *being* and *having*, together with the productive nature of *ing*-forms with nonauxiliary verbs, leads to an analysis of *being* and *having* as V[-AUX]. Hence their lack of post-auxiliary ellipsis, which is restricted to [+AUX]. This is supported by a further consideration. ASW and GPS both discuss restrictions on the 'fronting' of the complements of auxiliaries. The paradigm ASW report is one (to put it in my terms) in which a nonfinite VP headed by a nonauxiliary verb or by *being* may be fronted, but one headed by *be* or *been* may not. The main facts are recapitulated in (15.a - j), which are taken from GPS: 604, with the addition of (k - m), which are not explicitly discussed by ASW or GPS.[5]

(15) a. *and went he.
b. and go he will.
c. and going he is.
d. and gone he has.
e. and taken by Sandy he was.
f. *and to go he is.
g. *and to go he wants.
h. *and be going he will.
i. *and have gone he will.
j. and being evasive he was.
k. ?* and be happy/tortured he will.

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[5] ASW claim straightforwardly that the only form of BE which may be fronted is *being* (see their 77 p. 28), though there is no explicit discussion of the crucial instances of k and l, which their analysis predicts to be ungrammatical, either here or in Akmajian and Wasow (1975). GPS's analysis makes the reverse prediction for k and l. The examples of l seem clearly ungrammatical. Those of k also seem generally unacceptable, though the judgement is not so clear. It seems best to accept the judgements implied by ASW.

l. *and been good/tortured he has.
m. and being tortured he was.

If *being* is [-AUX], then there is a straightforward generalization here: VP may be fronted provided it is not headed by an auxiliary. If *being* is [+AUX], however, a less simple and general statement seems to be necessary. Thus these two exceptional aspects of the behaviour of *being* follow straightforwardly from its analysis as [-AUX], and their acquisition and maintenance are accounted for as motivated by morphological transparency. Notice that this gives a motivated and unitary account of the two most important pieces of evidence cited by ASW in favour of their rule restructuring *be* from V^1 into V^2.[6] It also compares well with the more recent treatment of fronting data in Roberts (1990). He is forced to assign exceptional status to passive and copula *be*, which 'occupy the same V-projection as the main verb throughout the derivation. Therefore they are required to undergo [fronting] with the main verb.' (1990: 195). But as presented the analysis does not cover the facts, since it apparently treats (15.l) as grammatical, and it fails to generate the impeccable ... *and tortured he has been.*

British English is not so neatly dealt with. Here, post-auxiliary ellipsis does not fail with *being*, though for some speakers it does with *having* (GPS: 607): the type of (14.a, b) is generally acceptable, and (c) is for some. But the fronting of VP headed by *being* is grammatical as in American English. The most straightforward analysis treats *being* and *having* as [-AUX], but allows that they may occur with ellipsis, which is after all not only conditioned by auxiliaries but also by individual nonauxiliary verbs. It is, however, worth noting that there is a basis for an account of the double-*ing* constraint with such verbs as

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6 It may also provide a basis for an account of the claimed failure of stranded *being* after a fronted complement (ASW and Iwakura 1983) as in *They all said that John was being obnoxious before I arrived, and obnoxious he was being!* Note that Huddleston's (1980) reported judgements of the fronting of predicative and VP complements generally allow '[+AUX] - gap', disallow '[-AUX] - gap '. GPS, however, claim that (with appropriate stress patterns) such instances are grammatical (GPS: 630-631).

begin, finish, etc. if the rejection of *ing*-complements after *being* is reinterpreted as a property of the affix. The fact that this more general constraint is apparently stronger in American English than in British English may show that British English has not so fully accepted the implications of the transparent analysis, something also implied by the ellipsis facts; perhaps then British English *being* would be better analysed as unspecified for [AUX].

5. A Default Account

Within the account of auxiliaries proposed above, morphosyntactic categories will simply be stated individually, hence the possibility of distinct properties argued for above. But there is also a structuring within the class which we should capture, in particular the fact that modals with their plain infinitive complement are clearly central or 'prototypical' in comparison with (say) *ought* which lacks this property. Here appropriate statement calls for default mechanisms, and I want to develop an account using a modification of the account of defaults given in Generalized Phrase Structure Grammar (GPSG, for which see principally Gazdar et al. 1985), because of its economy and elegance. Moreover this account of syntactic defaults is detailed and systematic, and it also has the virtue that it is declarative (cf. Gazdar 1987, Evans 1987). The modification of the system required is radical in that it takes an important step towards Head-driven Phrase Structure Grammar (HPSG, for which see principally Pollard and Sag 1987). But although HPSG gives an account of defaults within its lexicon I shall suggest that its structuring is not obviously appropriate for the data, which may be better illuminated by a less hierarchical account. The employment of defaults, which are essentially markedness conditions, seems fully justified by the fact that their use is ubiquitous in linguistic analyses. In particular the relatively full description of English given in Gazdar et al. (1985) required a series of default conditions, and it is difficult to imagine that linguistically satisfactory analyses of natural language will be achieved without such conditions.

5.1 Morphosyntactic Features

I will adopt the feature analysis for verbal morphosyntax argued for in Warner (1985). This depended on two conservative criteria. First, that

such logical operations as disjunction, negation and quantification are not available within categories, though disjunction at least may feature in the statements about categories made in lexical entries. Second, that it is better to adopt syntactic features which correspond directly to morphological categories where this is possible. This might be defended on grounds of simplicity, or of learnability. Note that the first of these criteria is inconsistent with the characterization of the finite/nonfinite/participial parameter by means of a feature name VFORM with the values {FIN, BSE, INF, PSP, PRP, PAS} as in Gazdar et al. (1985) or Pollard and Sag (1987) given that it is necessary to characterize the complement of *being* in such a way as to bar infinitives and *ing*-forms, even in a coordination of complements.

Participles and gerunds. Given the second criterion just proposed, we may suppose that present participles and gerunds share a feature [+ING], and that past and passive participles, which always show the same morphology in English, share a feature [+EN]. These categories can be subdivided by the single feature PRD, which characterizes the 'predicative/non-predicative' distinction in Gazdar et al. (1985), Pollard and Sag (1987: 64ff.). This is sufficient to distinguish the past participle [+EN, -PRD] from the passive participle [+EN, +PRD], and a feature PASSIVE is not necessary. It also distinguishes progressive and nonprogressive *ing*-phrases, as is appropriate given their distinct distribution. But there seems to be no need to suppose any further lexical level distinction (say between 'gerund' and 'participle') among *ing*-forms with verbal rection.

The distinctions proposed so far, then, are these:

Nonprogressive *ing*	[+ING, -PRD]
Progressive *ing*	[+ING, +PRD]
Past participle	[+EN, -PRD]
Passive participle	[+EN, +PRD]

Finites and infinitives. It is natural to assume a feature FIN 'finite', and I will assume with GPS that the 'bare' infinitive (the infinitive without *to*) is distinguished by a feature BSE, both having values {+, -}. Imperatives conjoin with finites, and are distinct from infinitives in negation and in that their subject is not oblique. They are

clearly [+FIN], but must be distinguished from other finites. If they are analysed as [+FIN, +BSE] this will capture the fact that they are always the base form of the verb, even with the highly irregular *be*, in accordance with the criterion suggested above.

The bare infinitive is taken to be [-FIN, +BSE]. I follow Pullum (1982) in taking *to* to be an auxiliary verb, and I will characterize it by a feature TO with values {+, -} so that *to* is itself a base form, [-FIN, +BSE, +TO].

The distinctions proposed for finites and infinitives are these.

Nonimperative finite	[+FIN, -BSE]
Imperative	[+FIN, +BSE]
Bare infinitive	[-FIN, +BSE, -TO]
To infinitive	[-FIN, +BSE, +TO]

Using this set of morphosyntactic features, a reasonably full lexicon for English will include the information of (16).[7] Note the special subcategorization for *been* in the sense 'go', and the restriction of *have to*, and possessive *have* to finites as I believe is appropriate for some speakers. In this fuller account the fact that the subcategorizational properties of the different categories of *be* and *have* may be distinct is clearer than in the abbreviated account of (8) above.

(16) Auxiliary category and subcategorization information in the lexicon

Form	*Subcategorized for phrasal complement*
can, could, etc. [+AUX, +FIN, -BSE]	[-FIN, +BSE, -TO]
do [+AUX, +FIN, -BSE]	[-FIN, +BSE, -TO, -AUX]
ought [+AUX, +FIN, -BSE]	[-FIN, +BSE, +TO]
to [+AUX, +BSE, -FIN]	[-FIN, +BSE, -TO]
is [+AUX, +FIN, -BSE]	[+PRD, -BSE]; [-FIN, +BSE, +TO, -PRD]

7 Here I assume a transparent feature DIR which encodes the directionality of the complement of *been*. Identificational *be* is not represented.

be [+AUX, +BSE]	[+PRD, -BSE]
been [+AUX, +EN, -PRD]	[+PRD, -BSE]; PP[DIR]
being [-AUX, +ING]	[+PRD, -BSE, -ING]
has [+AUX, +FIN, -BSE]	[+EN, -PRD]; NP; [-FIN, +BSE, +TO]
have [+AUX, +BSE]	[+EN, -PRD]
having [-AUX, +ING, -PRD]	[+EN, -PRD]

5.2 Subcategorization

GPSG treats subcategorization as a syntactic condition, not one to be reduced to theta role assignment or functional or semantic selectional restriction. For convincing arguments for this position see Sag and Pollard (1989). GPSG makes use of a battery of syntactic rules to define phrase structure, and introduces lexical items by coding them for the particular rule which introduces the items they are subcategorized for. Thus in Gazdar et al. (1985) periphrastic *do* is SUBCAT[46] and is introduced by this Immediate Dominance rule, which gives its subcategorization for a plain, nonauxiliary infinitive.

(17) VP[+AUX] → H[SUBCAT[46]], VP[-AUX, BSE] (where 'H' identifies the rule's head, BSE the plain infinitive)

GPSG also deals with relationships between constructions (such as active - passive) indirectly, by 'metarules' which define further syntactic rules on the basis of those already in the grammar. But this theory of metarules needs revision on several counts (Pollard 1985). The most striking is the fact that metarules have to be restricted so as to interrelate only syntactic rules which introduce lexical heads (Gazdar et al 1985: 59). This is important in capturing restrictions on the distribution of traces, which can only appear as sisters to lexical heads (Flickinger 1983). But as a restriction on metarules this is quite unmotivated; it is not a consequence of the architecture of the grammar as would be desirable. It means that metarules essentially interrelate subcategorization possibilities, which suggests that GPSG's syntactic account of subcategorization should be replaced by a lexical account,

and that this area of syntax is a projection from the lexicon with metarules reinterpreted as lexical rules.[8] This in turn suggests that subcategorization facts should be encoded directly in lexical entries. This is done in HPSG where *do* is specified SUBCAT <VP[BSE], XP> in the version of the theory developed by Pollard and Sag (1987: 204) in which the value of SUBCAT is a list of categories specifying both subject (here [XP]) and complements in reverse order. This permits a radical reduction in the number of rules which define syntactic dominance within the theory, since the information on the right hand side of rule (17) and the major category of its mother is in the lexical entry, and Pollard and Sag in fact capture all lexical-head + complement structures by means of two very general rule schemata.

5.3 Default Conditions and the Lexicon

We might consider adopting a reformulation of GPSG under which lexical items were specified for their complements in a list-valued feature SUBCAT, and the grammaticality of a local tree which contained a head and its complements depended on a matching of these categories (via a schematic rule) with those in a lexical entry: the head with the lexeme, and the complements with categories in the lexeme's SUBCAT feature.[9] The feature and category system would be that of GPSG adding list-valued features within the general framework of Gazdar et multi al. (1986). Metarules would be replaced by lexical redundancy rules. There would of course be a series of redefinitions, some of which are noted below. For my present purposes what would be interesting about this system is the prospect of capturing much lexical redundancy by stating lexical entries in an underspecified form and allowing the instantiation of features within the lexicon to yield

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8 There is also a problem over the generative capacity of a theory with metarules: their availability must be restricted to avoid increasing expressive power, but it is not clear that the restriction imposed by Gazdar et al. 1985 (that a metarule should not be allowed to apply to its own output) is either natural or descriptively appropriate. For some other problems see Jacobson 1987: 395-7, tempered by Hukari and Levine 1990.

9 I shall not consider the status of subjects, and my SUBCAT values will refer only to complements.

fully specified entries under the control of specific conditions, both absolute and default, along the lines of those in GPSG.

This would provide an alternative to the HPSG system. In this system lexical entries are fully (or nearly fully) specified and redundancy is reduced by lexical redundancy rules and by inheritance within a structured network of information (Flickinger 1987, Pollard and Sag 1987: chapter 8). On the face of it the GPSG defaults give a system which lacks the hierarchical structuring of Pollard and Sag's typed account, though hierarchy can be represented in it. This apparent difference (even advantage) will be discussed briefly below.

In the theory of categories developed in GPSG, categories consist of 'feature name - feature value' matrices, and their occurrence in trees is subject to two particular type of restriction:

(i) Feature Cooccurrence Restrictions, which are absolute. For example AGR (agreement) in English is found only on [+V, -N] (1985: 246)

(ii) Feature Cooccurrence Defaults, which hold whenever no contrary statement has priority. For example, lexical verbs are not passive (unless of course they are specified as such by metarule) (1985: 100). Otherwise the grammar would falsely predict the grammaticality of such passive VPs as *bitten a dog*, hence of the sentence *John was bitten a dog*, etc.

Now, although Feature Cooccurrence Defaults are part of the mechanism of syntactic specification in GPSG, it is clear that at least those which involve lexical items can equally be interpreted as holding within the lexicon in a model in which feature specification takes place in the lexicon. The reason for this is as follows. The default system of GPSG holds for both phrasal and lexical nodes. In the case of phrasal nodes there is an elaborate mechanism for exemption from default conditions where information is being transmitted to another node within the local tree. But, if we accept the simplification of the default system proposed in Warner (1987) (as I do), then there is no such exemption in the case of lexical nodes. Thus there is no need to refer to syntactic information here. These conditions could apply in the lexicon,

and the most constrained theory would indeed be one that required them to apply where distinctively syntactic information was not available, i.e. in the lexicon. Instead of being defined across 'projections' of rules they could be defined across 'projections' of minimally specified lexical entries in a very straightforward reworking of the GPSG definition.[10] It is also straightforward to suppose that those Feature Cooccurrence Restrictions relevant to the lexicon may hold within it (as well as more generally within the grammar).

Moreover, it may be possible to generalize this position to phrasal defaults. The GPSG default system has the effect that phrasal defaults apply when the value of the default feature does not covary with that of some feature in another category within a local tree. Thus the default to [-INV] (where clauses with subject-auxiliary inversion are [+INV]) does not hold on a root S, since the value of INV covaries with that of a head daughter. But there is typically no covariation when a phrase is introduced as a subcategorizand, and complement clauses therefore default to [-INV]. This would clearly follow if defaults held within the value of SUBCAT in the lexicon. Moreover, there would be an interesting advantage, because the effects of the exemption mechanism proposed in Gazdar et al. (1985) would follow as a theorem, without the need to specify any mechanism for that exemption. Intermediate nodes would simply not be subject to the default in the first place, and would need no exemption. Thus there would be a motivated account of the scope of defaults which is ad hoc and has no apparent rationale from the point of view of GPSG. Needless to say, this would be a highly desirable position.[11]

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10 Instead of referring to the 'candidate projections' of a rule (Gazdar et al. 1985: 102-103), the definition of defaults will refer to 'candidate projections' of an under-instantiated lexical category.

11 If all defaults are lexical, however, the analysis of coordination proposed in Sag et al. 1985 may need to be abandoned. In this proposal the constituent coordination of nonidentical constituents is analysed as having the mother unspecified for those features whose values differ between daughters. But this implies that some phrasal defaults will have to occur in the syntax within coordinate structures, cf. for example *I expect to see Harry and that he will be pleased to see me* where a default requiring infinitives to be introduced by *to* cannot apply within SUBCAT since SUBCAT won't be specified for the infinitive. Related difficulties with lexical level categories

5.4 Lexical conditions on auxiliaries.

We can conceive of subregularities within the category structure of a lexeme in two broad ways. In one, rules of formation specify the existence of a subcategory and its shape. The other dissociates the morphological statement from the syntactic categorial statement, as if one were to say, 'verbs have progressive participles' without also treating of the question of their regular formation. The statements made in this section structure the interrelationship between verb and auxiliary and the subcategories of auxiliary in this second way, without reference to the morphological formations involved. In the first half of this paper I did not draw this distinction. But the separation of the two levels of statement has the advantage that it explicitly rules out the otherwise potential association of irregular syntactic properties with morphologically irregular forms. Thus a participial noun is surely impossible in English, even as an irregular formation.

The relevant statements are briefly made. Here V stands for the feature complex common to verbs and auxiliaries, [+V, -N].

(i) Feature Cooccurrence Restrictions

+FIN ⊃ V
+BSE ⊃ V
+EN ⊃ V
+ING ⊃ V

These require any category which is [+BSE] (etc.) to be also V. These restrictions (and the defaults below) form part of the grammar's account of what the permitted morphosyntactic categories of the word classes in question are. For English verbs we need (for example) to say that they

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will be met if a sufficient degree of morphosyntactic specification is imposed by Feature Cooccurrence Restriction (such as V, BAR 0 ⊃ FIN, BSE, etc.) as seems not implausible. Proudian and Goddeau 1987 propose a variant account of coordination within HPSG which registers conflict of feature values on the mother. But as stated this misgenerates badly, and would apparently predict *I expect see Harry and that he will be pleased to see me, I expect seeing Harry and that he will be pleased to see me*, etc. given their use of VFORM and of [VFORM CONFL] (mnemonic for 'conflict').

have a plural present indicative finite and a progressive participle. If the specification of features on categories is free but subject to conditions, Feature Cooccurrence Restrictions can be seen as structuring the category space of a language. Thus, one rendition of +EN ⊃ V into English would be as 'only verbs have second participles' (to borrow Jespersen's term). This is not the same statement as would be made by a morphological rule which allowed for the regular formation of second participles only of verbs, since it debars 'irregular' second participles of nouns and other parts of speech and thus structures the language's category space as the morphological rule does not.

(ii) Feature Specification Defaults

1 a. +BSE ⊃ -AUX
  b. +EN ⊃ -AUX
  c. +ING ⊃ -AUX
  d. +PRD ⊃ -AUX

2 a. +AUX ⊃ SUBCAT<[+BSE]>
  b. +AUX ⊃ SUBCAT<[-TO]>

3 +AUX, SUBCAT<[+BSE]> ⊃ +FIN, -BSE

Default statements also form part of the grammar's account of the normally permitted morphosyntactic categories of a word classes. But they admit exceptionality as a special property of an item or group of items, as we must do if general statements of any interest are to be made. They also have the particular appropriacy and interest that they permit us to model the prototypicality structuring of a word class. It seems clear that modals are prototypical auxiliaries, and that nonfinite morphosyntactic categories of the verb do not automatically apply to auxiliaries, from which we might conclude that nonfinite auxiliaries were less prototypical within the class. The first set of defaults above simply state that nonfinite morphosyntactic categories of the verb, including [+PRD] (which is never [+FIN]), are not freely available to auxiliaries. They require any category which is [+BSE] (etc.) to be also [-AUX], unless the grammar specifies otherwise. The consequence of

these statements is that fully specified auxiliaries will all be [-BSE], etc. unless some further statement is made. The defaults of (2) say that prototypical auxiliaries take a plain infinitive phrase: modals belong here. The default of (3) seems also to be necessary, although its effects overlap with those of the first set. It says that an auxiliary with an infinitival complement is indicative (i.e. a nonimperative finite). This statement might rather be taken as a Feature Cooccurrence Restriction, i.e. as exceptionless: its status depends on the analysis of the nonfinite forms of *dare*, and of imperative *do*. It is worth noting that this default imposes the order 'finite - infinitive' of (11) on the verbal group.

This more detailed attempt to extract the regularities within the class of auxiliaries which characterizes modals as its prototypical members also enables us to refine the rather general statement made in the first half of the paper about the relationship between verbal categories and auxiliaries. Within a default account the status of finiteness is distinct from that of nonfiniteness. But there is no regularity of formation related to that of full verbs either in morphology or in semantics, as I argue in Warner (forthcoming). If the default account given here and the generalizations I have stated within it are appropriate, the following more complex characterization of the morphosyntactic relationship of auxiliaries and full verbs seems reasonable.

(18) The inflectional regularities of verbs do not hold for auxiliaries; nor do auxiliaries automatically have any nonindicative categories. But the unmarked auxiliary is indicative.

Given the Feature Cooccurrence Restrictions and Feature Specification Defaults above, with these additions:

FCR: TO ⊃ +BSE
FSD: SUBCAT ⊃ SUBCAT<[BAR 2]>
FSD: SUBCAT ⊃ SUBCAT<[-PRD]>

the (underspecified) lexicon for auxiliaries can be simply listed.[12] Note that only the [+AUX] category membership of a central modal need be given.

(19) Auxiliary category and subcategorization information in the lexicon before application of defaults.

can, could, etc.	+AUX
do	+AUX, SUBCAT<[-AUX]>
ought	+AUX, SUBCAT<[+TO]>
to	+AUX, +BSE, -FIN
is (finite)	+AUX, SUBCAT<[+PRD, +TO]>
is (finite)	+AUX, SUBCAT<[+PRD, -BSE]>
be (base)	+AUX, +BSE, SUBCAT<[+PRD, -BSE]>
been	+AUX, +EN, SUBCAT<[+PRD, -BSE]>
been	+AUX, +EN, SUBCAT<[DIR]>
being (±progressive)	-AUX, (+PRD), SUBCAT<[+PRD, -BSE, -ING]>
has (finite)	+AUX, SUBCAT<[+EN]>
has (finite)	+AUX, SUBCAT<[+TO]>
has (finite)	+AUX, SUBCAT<[N]>
have (base)	+AUX, +BSE, SUBCAT<[+EN]>
having (-progressive)	-AUX, +ING, SUBCAT<[+EN]>

6. Why this formalism?

I have proposed here an account of lexical defaults which is apparently distinct from that of HPSG. Overt differences between the two kinds of account may turn out to be of no great importance, since it is clear that major aspects of frame inheritance systems and typed systems can be represented in logical formalism, even if the claim made by Hayes (1980: 56) that 'most of "frames" is just a new syntax for parts of first order logic' has not been generally accepted (Ringland and Duce 1988: 92). But the accounts are at least intuitively of different kinds.

12 Here for simplicity I omit *have got* and identificational *be*

I suggested above that auxiliaries are characterized by these Feature Specification Defaults

2 a. +AUX ⊃ SUBCAT<[+BSE]>
  b. +AUX ⊃ SUBCAT<[-TO]>
3 +AUX, SUBCAT<[+BSE]> ⊃ +FIN, -BSE

('an auxiliary is subcategorized for a plain infinitive; if an auxiliary is subcategorized for an infinitive it is nonimperative finite'). If this is right, the subcategorization SUBCAT<[+BSE]> makes a complex contribution to the structuring of auxiliaries. A typed hierarchy might assign [+AUX, +FIN, -BSE, SUBCAT<[+BSE]>] to a type 'auxiliary'. But this would obliterate the status of the one-way implicational structuring. And it is not easy to see how just the complex of information of (2) and (3) would be appropriately and naturally represented by means of inheritance in an inheritance hierarchy. A related point is as follows. In the Feature Specification Defaults above [+AUX] can be viewed partly as an abbreviation for other auxiliary properties not explicitly listed, such as the existence of pro-verbal uses, or the availability of a negative inflection. In accounts of prototype structuring, it is natural to assume that properties interact in the sense that clusters of properties are more potent than the sum of their individual contributions (cf. Tversky 1977), and this is what is represented in Feature Specification Default 3. But this kind of structuring is not obviously hierarchical in the sense of Flickinger's account of the HPSG lexicon (1987).

So I have two related and partly intuitive reasons for suspecting that a lexical (or word class) hierarchy of inheritance may not be an appropriate framework for stating all linguistic redundancies between classes. Clearly I haven't demonstrated anything here. I've just underpinned my suspicions that a lexical class hierarchy isn't the end of the story. But this makes it worth exploring an alternative.

7 Conclusions

(i) English auxiliaries are categorially distant from full verbs. In particular, the regularities of verbal morphosyntax which predict the existence of a paradigm of categories and their formal attributes do not

hold for auxiliaries. Their categories are given separate statement and may have separate properties, including subcategorization. This has been shown to give a detailed account of the puzzles of auxiliary order, the double-*ing* constraint, the idiosyncratic behaviour of *being* and *having* as well as of some other characteristics. Thus a series of long-term problems has been very simply interpreted in terms of a plausible type of word-class difference.

(ii) The default conditions of GPSG can reasonably be reinterpreted as holding in the lexicon.

(iii) The class of auxiliaries can be very simply and straightforwardly described as structured in terms of a series of defaults.

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DISCOURSE ANAPHORA IN CHINESE: A RHETORICAL PREDICATE ACCOUNT

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1 Introduction

In this paper I discuss a type of coreference in which an antecedent and an anaphor appear in subject position in two adjacent clauses. This type of coreference may be realised by a pronominal anaphor or a zero anaphor, and the alternation of anaphoric distribution in this position has been claimed to be triggered by sentence type in Li & Thompson (1978) and by the relative position of the subject in the sentence in Liu (1981). I argue that this alternation is determined by the discourse-structure of the sentence and propose a modification of Liu's generalisation governing the alternation of zero and pronominal anaphora for coreferential subjects in terms of rhetorical predicates. I will start by reviewing approaches based on the notion of adjacency clauses (Li & Thompson 1978, Liu 1981), examining some of the problems encountered in such approaches. Then I will propose an alternative approach to these problems with rhetorical predicates.

Before embarking on this undertaking, however, it is necessary to say what I mean by discourse anaphora. Discourse anaphora may be defined, informally, as anaphora in discourse that is not controlled syntactically. Unlike English that only has two types of discourse anaphora (e.g. pronominal and nominal anaphora), Chinese exhibits three types -- pronominal anaphora, nominal anaphora and zero anaphora. Zero anaphors may be seen as a phonetically unrealised type of anaphor that occurs in syntactic positions occupied by an NP. To illustrate the use of these three types of anaphora in Chinese (ZA, PA, NA for short), let us look at the following examples.

(1) a. Xishen tongzhi bujin zhuzhong nongyede jichu zuoyong
Xishen comrade not-only stressed agriculture basic role

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b. 0 tongshi ye shifen zhongshi gongyede
meanwhile also much pay-attention-to industry
zhudao zuoyong
leading role
"Comrade Xishen not only paid much attention to the basic role of agriculture, but at the same time attached much importance to the leading role of industry."

(2) a. Zhou Enlai tongzhi shi yiwei ji you geming
Comrade Zhou Enlai is a both have revolution
danlue you you qiushi jingshen de gongchanzhuyizhe
courage and have pragmatic spirit Communist

b. Ta zai meiyi zhongda douzhengzhong shanyu
he in every major struggle skilfully
ba liangzhe jiehecqilai
get both combined
'Comrade Zhou Enlai was a Communist with both revolutionary courage and a pragmatic attitude. He was skilful at combining these two in every major struggle.'

(3) a. Yijiuyiliunian, Li Guangqian jing Zhuang Xiquan de
in 1916, Li Guangqian through Zhuang Xiquan's
tuijian wei Chen Jiageng pinyong
recommendation by Chen Jiageng engage

b. Chen Jiageng powei xinshang Li Guangqian de
Chen Jiageng very appreciate Li Guangqian's
nengli he caihua
ability and talent

c. 0 bujiu jiu tisheng ta wei jingli
soon then promote him as manager
"In 1916, recommended by Zhuang Xiquan, Li Guangqian, was appointed by Chen Jiageng. As Chen Jiageng very much appreciated Li Guangqian's ability and talent, he promoted him manager before long.'

Passage 1 is an instance of ZA, where the underlined antecedent (*Xishen tongzhi*) occurs in subject position of the first clause and its next mention occurs in subject position of the following clause, and takes the form of a zero pronoun. Passage 2 demonstrates the use of PA, where a pronoun (*ta*) appears in subject position of the second clause, coreferential with the subject of the first clause. Finally, in (3) the antecedent (*Chen Jiageng*) appears as the object of the preposition *wei* in the first clause and the anaphor occupies the subject slot of the second clause, where it is realised as a noun.

As mentioned earlier, this paper focuses on the type of coreference in which the antecedent and the anaphor occur in so-called 'adjacency clauses'. Adjacency clauses, as is implied by their name, involve clauses that occur adjacent to one another in a linear order. For an approach using adjacency clauses as an analytical tool, functional relationships among the clauses are presumably irrelevant; discourse is seen as composed of an undifferentiated string of clauses which follow one another in time/space but do not form larger units that could perform communicative functions in relation to one another, whether a clause is an aside about a character, or a piece of evidence to support an assertion is irrelevant. I will limit my attention to the discussion of coreferential subjects of adjacent clauses for the following reasons. It might appear that, within a sequence which involves two or more clauses, a linear approach to anaphora would be an adequate one. It is therefore apparent that it will be of more theoretical and methodological significance if an adjacency clause approach can be shown to be inadequate where one might suppose it to be most relevant.

2 Description with adjacency clauses

Li & Thompson (1978) and Liu (1981), which deal with zero anaphora in Chinese, are analyses based on adjacency clauses. Thus, to demonstrate how these approaches work, we will start by examining their proposals for predicting the distribution of anaphors in adjacent clauses.

Li & Thompson attempt to characterise ZA on the basis of sentence type, claiming that ZA is obligatory in adverbial sentences, but optional in correlative sentences A correlative sentence in Chinese

has a structure involving two clauses each of which contains a correlative marker, e.g. the boldfaced items *yinwei...suoyi* ('because...therefore') in example 5. To illustrate how this analysis works, consider the following.

(4) a. Zhangsan zoule yihou
Zhangsan leave after

b. 0/*ta jiu mei huilai guo
he then not come-back ever
'After Zhangsan left, he has never returned.'

(5) a. Yinwei Lao Li hen mang
because Lao Li very busy

b. suoyi 0/ta bu neng lai kan ni
therefore he not can come see you
'Because Lao Li is very busy, he can't come to see you."

In (4), since it involves a sentence containing an adverbial clause, ZA is required and in (5), since it is a correlative sentence, ZA is optional and PA is possible.

This analysis, however, makes incorrect predictions about anaphoric distribution in correlative sentences like (6). In this example the correlative markers are *yi...jiu* ('as soon as'), where ZA is obligatory.

(6) a. Xiao Ming yi jiandao wo
Xiao Ming as-soon-as see me

b. 0 jiu xiang wo zhao shou
then to me wave hands
'As soon as Xiao Ming saw me, he waved at me."

To solve this problem, Liu (1981) makes a proposal that is based on the position of the subject relative to the correlative marker in each clause. His proposal is as follows

(7) Zero anaphor is obligatory in parallel structures which are subject-initial; otherwise it is optional. (In parallel structures which are not subject-initial, the pronoun is preferred.)

Liu formulates his generalisation in terms of 'parallel structures' to cover adverbial and co-ordinate constructions as well as correlative constructions. Thus, in (4) ZA is required because of the initial position of the subjects in the adjacent clauses, whereas in (5) ZA is optional because of the non-initial position of the subjects (that is, they are preceded by correlative markers *yinwei...suoyi*), and in (6) ZA is obligatory because the subjects of the clauses are clause-initial (in other words they precede the correlative markers). Another instance of correlative sentence is given in (8) in which ZA is required because the coreferential subjects are clause-initial.

(8) a. Xishen tongzhi bujin zhuzhong nongyede jichu zuoyong
Xishen comrade not-only stressed agriculture basic role

b. 0 tongshi ye shifen zhongshi gongyede
meanwhile also much pay-attention-to industry
zhudao zuoyong
leading role
"Comrade Xishen not only paid much attention to the basic role of agriculture, but at the same time attached much importance to the leading role of industry."

Liu's proposal that assumes the notion of adjacency clauses appears to be descriptively adequate for the data presented above, but it runs into trouble with the 'adjacent clauses' in (9).

(9) a. Zhou Enlai tongzhi shi yiwei ji you geming
Comrade Zhou Enlai is a both have revolution
danlue you you qiushi jingshen de gongchanzhuyizhe
courage and have pragmatic spirit Communist

b. Ta zai meiyi zhongda douzhengzhong shanyu
he in every major struggle skilfully
ba liangzhe jiheqilai
get both combined
'Comrade Zhou Enlai was a Communist with both revolutionary courage and a pragmatic attitude. He was skilful at combining these two in every major struggle.'

In this example, the subject of the second clause is coreferential with the subject of the preceding clause, and both subjects occur clause-initially. According to Liu's generalisation, ZA should have been expected for the coreferential subject of the second clause. However, contrary to Liu's prediction, PA occurs.

Admittedly, Liu does not explicitly deal with the kind of structure as presented in (9), but as he defines parallel structures in broad terms, by either the position of the correlative marker relative to the subject or the position of the subject with respect to the clause (i.e. whether subject-initial or not), the type of structure in (9), which exhibits a pattern in which the coreferential subjects occur clause-initially, should be taken to be covered by his proposal. If this is the case, then it poses counter-evidence for Liu's account, or at least it shows an inadequacy in it. In the 20 newspaper articles used as the data for this study, 16% (34/212) of sentence-initial coreferential subjects in adjacent clauses are realised by PA. This clearly poses problems for accounts based on adjacent clause analysis in general as well as for Liu's account in particular.

A close examination of these 34 cases in which PA, as against ZA, occurs shows a typical assertion-elaboration relationship between the adjacent clauses. That is, the first clause contains an assertion and the following clause(s) provides elaborative material or background information in support of the assertion, as illustrated in (9) above. We may look at another example.

(10) a. Lin Kexiu hai kuai tiyu
Lin Kexiu besides love sport

b. Ta ceng shi sheng juzhongduide yundongyuan
he once is province lift-weight player
bing qudeguo hao chengji
and achieve good records
"Lin Kexiu is particularly keen on sports. He used to be a member of the provincial weight-lifting team and achieved good scores."

In this example, the first clause makes an assertion, and the succeeding clause gives evidence for the assertion made in the preceding clause. Notice that PA occurs in the second clause where, according to Liu's proposal, ZA would have been expected.

The discourse structure of (9) and (10) is apparently different from the structure of the passages in (4) (5) (6) and (8), and this difference appears to have dramatic consequences for anaphora. However, with an adjacency clause approach, differences in discourse structure are ignored. Consequently, it makes wrong predictions as regards the type of anaphora in (9) and (10).

This supports the contention that any proper treatment of anaphora must seek an understanding of the structural organisation of the discourse in which the anaphora occurs. In the present case it has to capture and account for the kind of discourse presented in (9) and (10) as well as those discussed earlier. As the adjacency clause approach apparently fails here we then need an alternative model that can do the task.

In what follows, I want to briefly outline an approach based on discourse structure, the Rhetorical Predicate Analysis. (Because of limited space, I will only state the most essential points and leave out most of the details.)

3 Rhetorical predicate analysis

The basic assumption underlying this approach is that texts are not merely strings of clauses but are instead hierarchically organised groups of clauses which bear various informational and interactional relations to one another. Fox (1984) adopts a similar view. Following Grimes (1975), I use rhetorical predicates to describe the various relations of this type that hold between parts of a text or discourse. Rhetorical predicates take propositions as their arguments. A proposition is a more

abstract notion than a clause or sentence, though it is usually expressed by such syntactic forms. It is intended to represent the smallest unit that stands in informational and/or interactional relationships with other parts of the text. This framework thus has in its apparatus a basic unit, the proposition, and a group of rhetorical predicates which describe the various text structures into which the propositions enter.

The notion of rhetorical predicates as the means that a speaker has for describing and organising information is related to Rhetoric, and goes back to Aristotle (Winterowd, 1975). In Aristotle's day, Rhetoric is viewed as an essential means of achieving one's communicative goal, either in a public speech or a written discourse, and Aristotle describes the means available to a speaker in terms of topics of invention, which include definition, comparison, analogy, cause, effect, and consequence, etc.

In more recent years, Fuller (1959) describes rhetorical predicates as explicit organising relations used in discourse. He claims that the study and translation of texts (in his case, the Bible) must proceed from an understanding of the relationships holding between the structural units of texts. The relations Fuller identifies include series, alternative, general-specific, comparison, cause-effect, inference, etc.

Grimes (1975) deals with the same phenomenon using a different term, rhetorical predicate, to describe the semantic/structural relations between propositions in discourse in an attempt to develop a theory of discourse. According to Grimes, a proper theory of discourse must have a component of rhetorical predicates. His set of rhetorical predicates includes alternative, response, explanation, evidence, analogy and so on. Grimes claims that the predicates are recursive and can be used to identify the structure of text at any level (e.g. proposition, sentence or paragraph), but he does not show how this is done.

Taking as a starting point the descriptive taxonomies proposed by Grimes (and others). These include Beckman & Callow (1974), Longacre (1976) and Hobbs (1979). Mann & Thompson (1983) present an account of relational predicates in discourse in an attempt to provide the first steps for developing a theory of discourse. What marks their work as different from the previous studies including that of Grimes is their claim that rhetorical predicates are not just limited to organisational aspects of texts but convey essential subject matter.

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They claim that rhetorical predicates are 'basic', and involved in communicative 'acts' in the sense of Searle's speech acts and thus vital to the way a text functions. The set of relational predicates they propose however does not differ very much to that of Grimes.

Rhetorical predicates have also been used as an aid in anaphora resolution, for example, Hobbs (1978), Lockman (1978), and Fox (1984). Fox investigates the distribution of anaphora in discourse and uses rhetorical predicates as an aid to that end. Fox's set of rhetorical structure includes condition, circumstance, list, narrate, reason, contrast, purpose, and issue. Her work shows that anaphora is determined to a great extent by the hierarchical structure of a discourse and that structure is described and represented with rhetorical predicates.

The group of rhetorical predicates I am proposing for this paper is summarised in a tabular form in (11).

(11)

Name of Predicate	Internal Structure
(Adjoining Predicates)	
Issue	One nucleus, one or more adjuncts
Circumstance	One nucleus, one adjunct
Condition	One nucleus, one adjunct
Concession	One nucleus, one adjunct
Purpose	One nucleus, one adjunct
Reason	One nucleus, one adjunct
Response	One nucleus, one adjunct
(Conjoining Predicates)	
Succession	Two or more nuclei, no adjuncts
Joint	Two or more nuclei, no adjuncts
Contrast	Two or more nuclei, no adjuncts
Opposition	Two nuclei, no adjuncts
Alternation	Two or more nuclei, no adjuncts

Table 1: Rhetorical predicates used in this study

I take a similar position to Li & Thompson (1983) who describe their predicates as "members of a small set of general, highly recurrent relational predicates". It should be noted that although researchers appear

to come up with differing proposals for predicates, the differences mainly lie in the use of different terms for similar rhetorical/semantic relations. And although they differ in the number of predicates they propose, they seem to agree that their predicates are members of a finite set. The set of rhetorical predicates being proposed here appears to be small, but it seems reasonably sufficient for the structural relations exhibited in the texts used as data for this study, though I do not believe that the list in Table 1 is necessarily exhaustive.

In order to make such an analysis we need to decide on the function of propositions in texts and assign predicates to them. Generally speaking, pragmatics, world knowledge as well as linguistic competence are all involved in predicate assignment. Predicate assignment is also facilitated by certain surface linguistic phenomena, such as what may be called cue words, e.g. in English "therefore, so, anyway, or because". But since there are no hard and fast rules for predicate assignment (on the part of the reader), the analysis is to some extent subjective, and could have somewhat different results if done by someone else. This could affect the interpretation of discourse structure and consequently the anaphoric patterning in a discourse.

It should be noted that, rhetorical predicates fall into two major groups, according to the structural/semantic relationship which hold between their arguments (propositions): conjoining and adjoining, as specified in the Table. With a conjoining predicate, the arguments of the predicate are of equal status, in other words, they are all nuclei, while the arguments of an adjoining predicate are structurally unequal: one of them is the nucleus and the other(s) adjunct(s). In the following I present some examples to illustrate how these two classes of rhetorical predicates are used to describe the structural relationships between clauses/propositions in discourse.

(12)	a.	Youyu	Xu Fumin	zai	Ao	qijian	duoci	xiang
		as	Xu Fumin	in	Australia	period	several-times	to
		Huang	Xiansheng	qing-shu-zhong-huai				
		Mr	Huang	express-heart				

b. Huang Xiansheng juexin tong zuguode zhewei
Mr Huang determine with motherland this
you-zhi-qingnian jiecheng hezuo huoban
ambitious-youth become co-operating partner
'As Xu Fumir talked to Mr Huang about his plans and ambitions without reserve several times during his stay in Australia, Mr Huang made up his mind to co-operate with this ambitious young man from the motherland.'

(13) a. Mei Guangda bingbujinjin shi yige shangren
Mei Guangda not-only is a businessman

b. erqie haishi yiwei chusede shehui
but also-is a prominent social
huodongjia, cishanjia
activist philanthropist
'Mei Guangda was not only a businessman, but he was also a prominent social activist and philanthropist.'

Passage (12) is an instance of an adjoining predicate (Reason), in which proposition (a) is an adjunct that gives the reason for the statement in proposition (b) which is the nucleus. Passage (13) is a case of conjoining predicate (Joint), where the two propositions are equal partners. The Issue predicate is a member of the class of adjoining predicates and exemplifications of it are (9) and (10) (repeated as (14) below).

(14) a. Lin Kexiu hai kuai tiyu
Lin Kexiu besides love sport

b. Ta ceng shi sheng juzhongduide yundongyuan
he once is province lift-weight player
bing qudeguo hao chengji
and achieve good records
"Lin Kexiu is particularly keen on sports. He used to be a member of the provincial weight-lifting team and achieved good scores."

In (14) the first proposition, the nucleus, presents a claim and the following proposition, the adjunct, provides supporting, background material for the claim in the first proposition.

An important feature of rhetorical predicate structure is its recursiveness. This feature is not present in the data for this study since they only involve two or three adjacent clauses. That is, any argument of a rhetorical predicate, whether it is the nucleus or an adjunct, can itself be realised recursively by an embedded rhetorical predicate. Such recurrence of rhetorical predicates is built up from lower level to higher level and eventually results in a hierarchical organisation for the whole discourse. The rhetorical predicate analysis thus allows an account of anaphora in discourse which exploits the hierarchical structure of the discourse that otherwise appears simply as a string of clauses. A rhetorical approach like the one being proposed here will be able to offer a better account of anaphora occurring in a discourse displaying a highly complex structure than an adjacent clause approach. But if we can show that a rhetorical approach is both descriptively and explanatorily more powerful even in the context of two or more adjacent clauses, we are then achieving something extra.

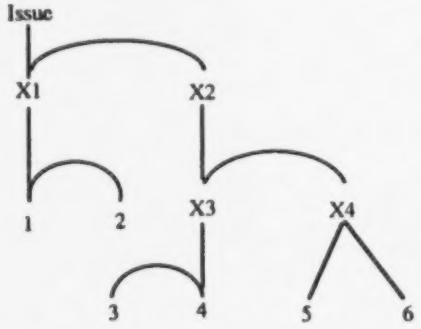
Let us now revisit some of our previous data from the perspective of rhetorical predicate analysis. The passages in (9) and (10), as analysed earlier, involve an Issue predicate whose nucleus (proposition a) contains an assertion, with its adjunct (proposition b) elaborating on the assertion. The passages in (4), (5), (6) and (8) involve various non-Issue predicates. For example, Passage 4 is an instance of the Circumstance predicate, in which the nucleus (proposition b) states the situation, and the adjunct (proposition a) states the circumstances under which the situation occurs. In passage 5 we have a Reason predicate. Here, the first proposition is the adjunct that gives a reason for the statement which is made in the second proposition that is the nucleus. Finally, Passage 8 offers an instance of a Joint predicate (one of the conjoining predicates) whose arguments are related in a co-ordinate fashion.

In the examples presented thus far, those which conform to Liu's generalisation are instances of non-Issue predicates. Those which violate Liu's generalisation are instances of Issue predicates. What then is the

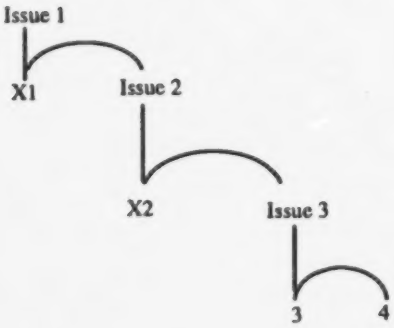
motivation for the pronominal realisation in Issue predicates since no ambiguity whatever would arise if ZA was used?

A possible explanation for this pronominalisation may lie in a unique property of Issue predicates. Issue predicates occur at various levels of discourse organisation and are used very commonly in the higher-level organisation of discourse. That is to say, the highest-level of discourse organisation usually consists of the nucleus and the adjunct(s) of an Issue predicate, each of which may in its turn be realised by a complex system of lower-level predicates. This may be better illustrated by diagrams in (15).

(15) a.



b.



In the first diagram, the nucleus of the Issue predicate is realised by the node X1 (which can itself be any predicate) with arguments consisting of propositions 1 and 2; the adjunct is realised by the X2 node which itself is realised by predicates X3 and X4 with propositions 3 through 6 as their respective arguments. Diagram 2 demonstrates the occurrence of the Issue predicate at different levels of discourse organisation. That is, Issue 1 occurs at the highest level of discourse, Issue 2 at the intermediate level, and Issue 3 at the lowest level. The relationships between them are that Issue 2 realises the adjunct of Issue 1 and Issue 3 realises the adjunct of Issue 2. The nucleus of Issue 1 and 2 may be a terminal proposition or an embedded rhetorical predicate and the nucleus of Issue 3 is a terminal proposition, as also is its adjunct.

What is crucial here is that different levels of discourse organisation seem to trigger the use of different forms of anaphora. According to the findings from one of my on-going investigations, in a discourse structure like that of (15.2) the adjunct of Issue 1 is associated with the use of NA, the adjunct of Issue 2 is associated with the use of PA, and the adjunct of Issue 3 is also associated with the use of PA. The type of discourse structure I examine in this study involves the lowest level Issue predicate (i.e. Issue 3). As shown in the diagrams above, adjuncts of Issue predicates tend to have internal structures of differing complexity, and as a result they form a more or less single unit modifying the Issue nucleus. A consequence of this is that a more explicit linguistic form (e.g. PA) is needed to mark such a unit, thus ruling out the possibility of ZA occurrence. The relatively independent status of the issue adjunct thus appears to operate as a trigger for the pronominalisation in examples like (9) and (10).

This analysis seems to suggest that, in terms of their effect on anaphora, there is a basic division of rhetorical predicates into Issue and non-Issue predicates. With this sub-categorisation, we are able to say that (lower-level) Issue predicates require the use of PA while non-Issue predicates require the use of ZA for the coreferential subjects in their adjuncts. To test this claim, I examined 20 newspaper articles and the results from the data analysis offer strong support to the claim. The findings are presented in the table in (16).

(16)

Type	ZA		PA		Total
Issue	2	5%	34	95%	36
	1%		85%		7%
Non-Issue	170	97%	6	3%	176
	99%		15%		83%
Total	172		40		212

Table 2: Distribution of Anaphors in Issue vs. Non-Issue Predicates

Table 2 shows that 95% of Issue predicates are correlated with the use of PA in their adjuncts while only 5% are correlated with the use of ZA. Of non-Issue predicates, 97% are associated with the use of ZA and 3% with the use of PA. Zero anaphora in non-Issue predicates occurs where the two adjacent clauses are subject-initial, whereas pronominal anaphora occurs where the coreferential subject(s) are preceded by conjunctions or correlative markers.

The following give further exemplification.

(17) a. Zhou Enlai tongzhi shi yige yanyuliji de ren
Comrade Zhou Enlai is a strict-on self person

b. ta dui beiren yaoqiu bijiao kuan dui ziji ze hen yan
he to others demand relative kind to self yet very strict
"Comrade Zhou Enlai was a very self-disciplined person. He was not very strict with others but very strict with himself.'

(18) a. Li Xiaolong ye you lieshi
Li Xiaolong also have weak points

b. 0 shencai aixiao zuoqi dongzuo lai bushuzhan
body short-little make movement not smooth
"Li Xiaolong also has weak points. Being physically short his dance movements are not very smooth."

(17) is made up of an Issue predicate, in which proposition (a) is the nucleus presenting the assertion and proposition (b) is an adjunct providing elaboration for the assertion made in (1). As predicted by our analysis, the coreferential subject in (b) takes the form of PA. (18) is one of the few realisations of zero anaphora with an Issue predicate. For the moment I do not have a satisfactory explanation of this example. In this example the second clause may be said to contain a subject (*shenti*, 'body') and thus what is being omitted is the topic (*Li Xiaolong*). The occurrence of the subject in (b) may have to do with the zero mention of the topic, but to say that as we are dealing with a discourse phenomenon, any generalisations or rules made for it cannot be as rigid as syntactic rules in sentence grammar, and one has to allow for exceptions. The exceptions in the present case, in my view, do not invalidate the generalisation but instead they are indications of the language user's freedom or preference in choosing linguistic devices. Having said this, there appear to be a common feature shared by the ZA occurrences in Issue predicates in my data, namely the nucleus tends to be a short simple clause (as does its adjunct). I am, however, not claiming that the simplicity or the shortness of the nucleus and/or its adjunct operates as a trigger for the ZA encoding, since in most of such contexts, PA occurs, as in (10) above.

We will look at some other examples.

(19) a. Gao Juefu zai Xianggang Daxue Wenxueyuan
Gao Juefu in Hong Kong University Arts Faculty
Jiaoyuxi dushu qijian
Education Department study time

b. 0 jiu dui xinlixue chanshengle xingqu
then in psychology have interest
'Gao Juefu became interested in psychology when he was a student at the Department of Education in the Arts Faculty of the University of Hong Kong.'

(20) a. Youyu Xiong Zaiding yizai yaoqiu,
because Xiong Zaiding repeatedly request

b. ta yu siyue chuyuan
she in April leave-hospital
'Because of her repeated request Xiong Zaiding was allowed to leave the hospital.'

(19) and (20) are both realised by a non-Issue predicate, Circumstance in the former and Reason in the latter. In (19) the antecedent (Gao Jiefu) occurs in the adjunct (proposition 1) and the anaphor occurs in the nucleus (proposition 2). According to our account ZA is called for. (20) differs from (19) in that while in (19) the antecedent and the anaphor both occur clause-initially the antecedent in (20) is preceded by a conjunction (Youyu), which results in the pronominalisation in (2). In fact, (20) is one of the six pronominal occurrences as against 170 cases of zero realisations in non-Issue predicates.

On the basis of the data analysis above, a modification of Liu's generalisation governing the alternation of zero and pronominal anaphora for coreferential subjects of adjacent clauses in terms of rhetorical predicates is stated as follows:

(21) PA is used for a subject anaphor coreferential with a subject antecedent in Issue predicates, and ZA is used in non-Issue predicates that are subject-initial; otherwise it is optional (and PA is preferred).

4 Conclusion

To conclude, in this paper I have discussed a type of coreference in which an antecedent and anaphor appear in subject position in two adjacent clauses. I have argued that the adjacency clause approach is not adequate to describe and predict anaphoric distribution because its inherently linear view of texts does not differentiate between the function of the parts of the texts. To tackle this problem, I have proposed a discourse-structure oriented approach, the rhetorical predicate analysis, which I have shown to be capable of capturing and describing various different structural and semantic relationships holding between parts of a text that apparently have consequences for the anaphoric distribution in the text. I have demonstrated that this structural approach provides a basis for correctly predicting anaphoric distribution in

examples limited to two adjacent clauses in terms of the rhetorical predicates involved. This shows that in such examples where the hierarchical approach might be expected to have the least to say and the linear approach to be most relevant, the former can actually do a better job than the latter. The advantages of this approach are still more apparent in those contexts where an anaphor (PA or ZA) has for its antecedent an element that is not available in the immediately preceding clause but separated by several clauses or even a large portion of text, which is certainly beyond the scope of any adjacency clause approach.

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Paragraphs indented. Use tabs for indent. No blank line between paragraphs. *Italics* for citation forms, single quotes for senses and for quotations, double quotes only for quotes within quotes.
Examples numbered consecutively. Numbers on the margin, in parentheses, with a., b., etc. for sub examples. Please use tabs before a., b., etc. and at the beginning (but only at the beginning) of example text and gloss, as follows

(1) a. J'ai lu [$_{NP}$ beaucoup d' articles] récemment
I've read many (of) articles recently

b. Pierre s'est brouillé avec [$_{NP}$ trop de collègues]
Pierre has argued with too-many (of) colleagues

Footnotes (after *) numbered consecutively and all placed at end of text.
References in the text in this form: Dowty (1982: 28). But omit parentheses in footnotes, and within other parentheses (like this: Dowty 1982: 28).
Major subheadings numbered and bold with word initial caps: number - stop - heading - no final punctuation, thus:
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